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6. The mind of a gorilla: Part II. Mental development—R. M. YERKES

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1. Learning and growth in identical infant twins: An experimental study by the method of co-twin control—A. GESELL AND H. THOMPSON
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2. A clinical study of sentiments: II.—H. A. Murray and C. D. Morgan

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HOMOSEXUALITY IN THE PHILIPPINES AND THE UNITED STATES: THE HANDWRITING ON THE WALL*[1]

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LEE SECHREST AND LUIS FLORES

A. INTRODUCTION

There are a great many indications that conflict about homosexuality is widespread among males in the United States. Kinsey's work (2) showed that homosexual experience is extensive among American males, and the existence of conflict is obvious. Both research (9) and personal observations in the Philippines pointed to a low level of concern about homosexuality in that culture. The existence of homosexuality there is apparent, but conflict appeared to be slight.

The obvious approach to compare the two societies in this respect was to develop some kind of questionnaire measure which might tap attitudes toward homosexuality; and that work is currently in progress. However, it seemed very desirable to try to get some measure of homosexual concern that is less dependent upon the cooperation and candor of the respondent (10). Tendencies which are strong in a culture may be expected to leave their traces; thus, even if we cannot observe a response being made, we may be able to discern the changes produced in the environment by the response, either in the form of erosions or accretions. Over the centuries many passersby have tarried long enough to carve some indelible (more or less) message in available stones; the word for such writings is *graffiti*. And there is every chance that a careful examination of the graffiti of an old city might reveal very clearly the changes in customs and mores over the years, an idea suggested by both Reisner (8) and Read (7). In fact, Lindsay (4) has been able to use graffiti to reveal much about life in old Pompeii. Thus it was that in a public convenience in

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the Philippines the first author noticed some writing on the wall, and this research project came into being.

Kinsey (3) reported data on graffiti in the United States; and from his evidence we can conclude that males produce far more toilet wall writings than do females, and the great majority of such writings (86 percent) are sexual in nature. Moreover, the bulk (75 percent) of the erotic inscriptions are homosexual in nature. Lomas and Weltman (5) have gone so far as to suggest that all sexually arousing graffiti are homosexual, since they were never intended for a mixed audience. While we have some reservations about their hypothesis, it is supportive of our interest in graffiti as indicators of sexual attitudes. Dundes (1), who, incidentally, suggests the word *latrinalia* for the subcategory of graffiti found in toilets, also believes that many toilet wall writings have a sexual origin and that they are related in particular to the conceptions males and females have of themselves. However, there have, thus far, been very few quantitative studies of graffiti.

B. Method

1. *Sampling Considerations*

Unfortunately, sampling procedures have not been worked out which would make it feasible to sample public toilets randomly. We cannot claim that our sample is random. We tried to be unsystematic in choosing locations,[2] and we were firm in refusing to include in the sample fortuitously discovered inscriptions. All the locations from which we have inscriptions were *chosen* to be in the sample before the walls were examined. All data were collected in the metropolitan areas of Manila and Chicago. We believe that our sample is reasonably representative of public conveniences in each city, with the exception that college and university locations are probably overrepresented. Table 1 shows the categories within which each of the toilet locations falls.

It should be remembered that we are not concerned with the absolute amount of toilet wall writing, but with the proportions falling into various categories. Therefore, we have ignored all locations with no writing at all, and we do not profess to know whether Filipinos write more on their walls than do Americans. That might depend more on the proportion of people carrying pencils than anything else.

By any sampling theory, probably even by a theory worked out for nonrandom samples, such as ours, the units sampled must be independent. For

[2] By a "location" is meant an entire facility housed within a single room or connecting rooms. Some facilities consisted of only a single stool and wash basin, while others had several toilet stalls, urinals, and wash basins.

these inscriptions that clearly is not the case. We do not know how many inscriptions in any one location might have been produced by a single individual, but we do know that serial inscriptions are not uncommon: i.e., there is an initial inscription to which one or more persons makes a reply or adds a comment. And it is almost certain that inscriptions of one sort tend to inspire others of the same variety or, perhaps, of some different variety; it makes little difference.

TABLE 1
LOCATIONS AND NUMBERS OF TOILETS FROM WHICH INSCRIPTIONS WERE OBTAINED

Location	U.S.	Philippines
College or university	12	12
Transportation terminals	5	2
Restaurants and bars	50	52
Other	6	8
Total	73	74

On the other hand, our locations would certainly tend to be a good bit more independent as sampling units although not completely so. If more than one location was sampled on a university campus, and that was done, there is a greater probability of overlapping clientele than if locations were widely separated in the city. However, in spite of the obvious weaknesses we have presented the data in this paper in terms of proportions of the total inscriptions in each sample, since we believe that that provides for greater clarity. Our main findings are equally well supported when the data are cast in terms of the proportions of locations showing particular kinds of inscriptions.

2. *Units of Recording and Analysis*

The basic data to be considered are inscriptions from toilet walls. We made every effort to obtain complete recording of all marks on the walls that seemed possibly to have some meaning, but there were inevitable frustrations owing to erasures, illegible writing, overlapping inscriptions, hard-leaded pencils, and the like. Where necessary such inscriptions were categorized as "miscellaneous." The unit of response was considered to be anything produced by what appeared to be one individual on one occasion. Thus, the enumeration of members of a gang would constitute a single inscription, as would a single word written several times. Inscriptions which were replies to or comments on other inscriptions were considered to be separate response units. The main cues in identifying inscriptions as units were handwriting, thematic consistency, and proximity, color, and size of the inscription. All drawings were copied as accurately as seemed necessary in order later to be able to identify them.

3. *Coding and Tabulating*

An *a priori* coding system was established and slightly modified on the basis of the data obtained for analysis. All coding was done by the writers, the first writer coding the U.S. inscriptions and the second writer coding the Philippine inscriptions. Two hundred Philippine inscriptions in English were also coded by the first writer, and agreement in coding was perfect. All inscriptions were coded into one category only, depending on what seemed to be the important sense of the inscription. Thus, "Fuck LBJ" was coded under political rather than sex or hostility, even though the latter would have been an especially good possibility. However, nearly all other instances of hostile expression involved persons or groups presumably known personally to the inscriber, so an arbitrary decision was made to have a separate category for political commentary.

It is customary in the method section of a research report to discuss both the subjects involved in the investigation and the statistical analysis. Alas, our subjects are unknown to us. Their number is in doubt, but at times it appeared to be legion. Their sex is in doubt, but we assume that nearly all were males. Their ages were undoubtedly varied, but we suppose that most were youthful. Their education and intelligence could also be considered unknown, but in view of the poor orthography, bad grammar, weak penmanship, and general low level of wit characterizing these inscriptions, we prefer to think that both education and intelligence are in doubt.

As for tests of statistical significance, we have none. As we have already suggested, the data are weak for statistical purposes to begin with, and besides we do not think that anyone will be persuaded either way by the presence or absence of such tests. The differences in which we are most interested are sizeable, and in our estimation one must either accept them or not.

C. Results

In the 73 locations in the U.S. sample, a total of 662 inscriptions were identified and recorded. For the 74 Filipino locations, the total was 1327. In Table 2 will be found the results, given in percentages, for the categories of greatest interest. The figures given do not sum to 100 percent because miscellaneous categories—e.g., arithmetic calculations, and names of persons and groups—were excluded. A very large proportion of the Philippine inscriptions consisted of names of individuals (44 percent) and groups (20 percent), the latter consisting mostly of gangs of one sort or another. Only about five percent of the U.S. inscriptions consisted of names, and usually fraternities were the only groups caring to advertise themselves.

First, let us note that the proportions of heterosexual inscriptions are about the same in the two samples, although there are some small but interesting differences in the kinds of inscriptions making up the category. We cannot infer a differential interest in sex in the two cities of Manila and Chicago. The two subcategories which are of interest are Drawings of female genitalia (actually this category includes all drawings of nude females alone) and

TABLE 2
FREQUENCY (IN PERCENT) OF VARIOUS INSCRIPTIONS ON TOILET WALLS IN THE U.S. AND THE PHILIPPINES

Type of inscription	% U.S.	% Philippines
Heterosexual	(13)	(12)
Invitations and requests	01	02
Accusations about sexual behavior of others	02	02
Drawings of female genitalia	04	01
Humor	01	00
Drawings portraying intercourse	<01	<01
Disapproval of sexual ideation	00	03
Homosexual	(42)	(02)
Invitations and requests	22	<01
Replies to invitations	01	<01
Accusations	06	00
Drawings of male genitalia	04	00
Hostile comments	05	00
Humor	01	01
Masturbation	<01	01
Nonsexual	(45)	(85)
Humor involving elimination	04	00
Other humor	08	00
Cosmic comments	04	<01
Hostile comments	04	08
Political content	04	<01
Romantic	<01	02

Note: The percentages given for the subcategories do not sum to the category total because various small, miscellaneous categories were not listed separately.

Disapproval of sexual ideation. Filipinos are apparently less likely to draw nude females and female genitalia than are Americans. However, there were several Filipino drawings portraying male and female genitalia together, something that we did not encounter in the American sample. On the other hand, there were no comments at all on American walls indicating disapproval of heterosexual activity, but three percent of Filipino inscriptions conveyed such notions: e.g., that other writers should be ashamed of themselves. (The percentages given for the subcategories do not sum to the category total because various small, miscellaneous categories were not listed separately.)

In the homosexual category we find a remarkable difference between the

two samples. In the American sample 42 percent of all inscriptions involved homosexuality in some way, while only two percent of Filipino inscriptions concerned homosexuality at all. (Masturbation is not included in the 42 percent and two percent.) And 22 percent of all the American inscriptions involved specific invitations to or requests for homosexual relations. Another six percent of American inscriptions consist of accusations of homosexuality or homosexual behavior on the part of other persons. An additional five percent of the American inscriptions are devoted to hostile comments about homosexuality or homosexual behavior. Rather naturally there were no such comments on Filipino walls because there were so few homosexual inscriptions to inspire them. Four percent of American inscriptions consist of portrayals of male genitalia. There were no drawings of male genitalia in the Philippine sample except in conjunction with female genitalia. Kinsey (3) suggests that not all drawings of male genitalia by males are to be regarded as homosexual, and that may well be the case. However, in our sample there were some drawings of male genitalia that were explicitly expressions of homosexual fantasies or which were explicitly intended to arouse such fantasies in others. There was actually only one inscription devoted to masturbation in the U.S. sample, but there were 14 among the Philippine inscriptions. They were equally divided between recommendations of masturbation and warnings against it.

Both humor involving eliminatory functions and other humor are relatively frequent in the U.S. sample and are missing from the Philippine sample. In fact, sexual humor was also missing from the walls of the Philippine toilets. Whether we simply missed humor that was latent in Philippine inscriptions cannot be decided at the present time. Cosmic comments are of a presumably philosophic nature, comments on the nature of the Universe, on the nature of man and the like: e.g., "God is dead . . . but so is Nietzsche"; "Where will it all end"; and "Play the cosmic game." Very few were found in the Philippines, but four percent of American inscriptions were so categorized. Political content was more frequent in the American sample, but the American data were collected, for the most part, in the fall of 1964; while the Philippine data were collected during one of their temporary lulls between political campaigns. Finally, romantic inscriptions (hearts, "I love Vicky") were found with some frequency in the Philippines, but very rarely in the United States.

D. Discussion

We believe that the results of our investigation are supportive of the hypothesis that conflict concerning homosexuality is considerably less frequent in the Philippines than in the United States. Sechrest (9) has found that

conflicts concerning sexuality are infrequently reported for Filipino mental patients, and reports of homosexual activity among such patients are rare. Certainly transvestitism is frequently observable in the Philippines, but reports of overt homosexuality are not inordinately frequent. Homosexuality is not even mentioned in the published proceedings of a conference on "Problems of counseling in Philippine colleges and universities" (6).

Nonetheless, in spite of our suspicion that homosexuality is more prevalent in the United States than in the Philippines, we wish to concentrate our attention on the level of conflict about the behavior, for we are inclined to believe that it is conflict that leads to homosexual toilet wall inscriptions. In the Philippines there is a word, *bakla,* which is widely understood and which is used to refer to persons who are homosexual in their behavior.[3] But it is also used to refer to transvestites, to effeminate males, and even to boys who are simply less active than others in games and outdoor activity. We doubt seriously that the word "homosexual" would serve as wide a variety of functions in the United States, because in the United States such an accusation would be regarded as a very serious matter. Homosexuality is of such grave concern that it must be kept quite distinct from superficially similar behaviors, and it demands a nonoverlapping term. But in the Philippines *bakla,* even in its sexually apparent forms, is a matter that can be and is taken lightly. The *bakla* is not the object of hostility and fear. Rather he is thought funny, amusing, and a good butt for fairly coarse humor. Moreover, quite in contrast to the United States, in the Philippines many persons appear to think *bakla,* even when it takes the form of overt homosexuality, to be a temporary phase in the individual's life.

We do not suppose that all, or even many, of the homosexual invitations and requests found on U.S. toilet walls are genuine. Undoubtedly most of them are written by "normal" males. However, it is the fact that they *are* written, that some males consider it exciting or amusing to do so that interests us. Similarly, we doubt that accusations of homosexual behavior are to be considered genuine. In fact, since whole fraternities have been publicly implicated, we hope that such accusations are false. But it interests us that accusations of homosexuality are apparently considered so insulting.

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[3] The only other Tagalog terms known to the writers, which are used to describe homosexuals, are the terms *bina bae* and *parang babe,* both of which may be roughly translated as "like a woman." These terms are commonly applied to transvestites and probably to other effeminate homosexuals. They appear to require effeminacy to justify their use; homosexual behavior is not sufficient. The term *mag-darling,* meaning "like darling," may sometimes be used to refer to a girl who has a crush on another girl. It is probably not often applied to males. Filipinos in the Manila area, especially college students, are vaguely acquainted with some of the terms used in English, but "fairy" is probably the only one likely to be used with any frequency.

The fact that heterosexual content is about as frequent in the Philippines as in the United States suggests that the small incidence of homosexual inscriptions cannot be attributed to a lack of interest in sex or in a reluctance to inscribe salacious material in public places. But we ought also to consider the possibility that the relative infrequency of homosexual inscriptions in the Philippines is attributable entirely to their proclivity for registering their individual or collective names and initials in public places. However, even when names are excluded from the analysis, homosexual inscriptions still constitute only seven percent of the total.

Kinsey (3) reported a very much higher proportion of sexual inscriptions than we found (86 percent *vs.* 55 percent), and we have no ready explanation for the difference. He does not give information about the locations from which his inscriptions were obtained, and we cannot make a comparison there that might cast light on the other differences. However, Kinsey reports a ratio of homosexual to heterosexual inscriptions of approximately 3:1, the same as obtained in the present study; and his reported frequency of inscriptions referring to homosexual dating is almost exactly the same as ours (21 percent *vs.* 22 percent). Another very similar finding was for frequency of drawings of female genitalia (three percent *vs.* four percent). One of the notable differences where a direct comparison is possible is in drawings of male genitalia, Kinsey reporting 15 percent to our four percent.

Some readers may have noted the very much larger number of inscriptions from Philippine toilets, approximately twice as many inscriptions from about the same number of places, but we wish to disavow any conclusions about the absolute frequency of toilet wall writing in the two countries. The amount of writing one finds will depend not only on how much of an inclination there is to engage in such behavior, but in availability of writing or scratching instruments, a suitable medium in which to register an impression, and upon the assiduousness of custodians in protecting our sensibilities by erasing or painting over the inscriptions made. There are very like differences between the two countries in all such factors.

We would like to conclude with a brief discussion of the difficulties involved in such work as reported here, for, like most field studies, the present one had its hazards. First, not everyone understands why someone is loitering in toilets copying down names, phone numbers, drawings, and things of that nature. One may protest that it is for science, but the stares of disbelief or the knowing leers are intimidating. And some persons are sufficiently hostile to such a brand of science as to order researchers, quite summarily, off the premises. A second problem stems from technological and other advances in sanitary

facilities in the United States. We urge those interested in exotic erotica, such as graffiti, to begin work in the field right away, because there are developments jeopardizing the future of such research. New kinds of wall coverings are being produced which either resist the imprint of pencil or pen in the first place or which make simple the custodian's task of removing the traces. Even though some inscribers are themselves industrious or persistent—e.g., writing in pencil on black walls as they did in one of our locations—they probably cannot keep pace with their medium. Finally, at least in the United States, it is apparent that graffiti are sufficiently offensive to many people that custodians are explicitly charged with responsibility for the early removal of any traces that are laid down. Alas, we fear that some of the potentially most interesting material was lost for good under new layers of paint or as the result of powerful new cleaners.

Various of our readers will wonder why we have neglected the product of female artists. We did not deliberately do so, but we have not yet accumulated a sufficient sample, especially from the United States, to make the analysis really sound. Females are, in this low artistic medium, as little productive as they have long been noted to be in the higher forms such as music, literature, and painting. Therefore, collecting data for female conveniences is wearing and frustrating. Some of the most likely looking places prove totally barren. Thus far we have relied upon female associates to collect inscriptions for us, but many of them have little heart for the task. As Kinsey has noted, women have little interest in pornography or other sexual stimulants. Hopefully, however, there will one day be an additional paper in this series which will be devoted to feminine graffiti.

E. Summary

Inscriptions from toilet walls (male) in the United States and Philippines were copied and later categorized according to content, it having been expected that frequency of homosexual content would be greater for the U.S. sample. Results indicated that the U.S. sample was much higher in homosexual content, but not higher in heterosexual content. The U.S. inscriptions also were more likely to be judged humorous, political, and philosophical. Philippine inscriptions had a higher frequency of hostile content and of disapproval of sexual ideation. Results for the U.S. sample were in fairly good agreement with results obtained previously by Kinsey.

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SOME INTERNATIONAL COMPARISONS OF TOBACCO CONSUMPTION AND PERSONALITY*

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A. INTRODUCTION

A striking association between smoking and personality has been reported by Eysenck (2). In two large scale investigations, each involving more than one thousand British subjects, he has found that cigarette smoking increases in linear fashion with the degree of extraversion. Pipe smoking, on the other hand, is associated with introversion. Neither types of smoking had any association with Eysenck's other main personality construct, neuroticism.

The findings are particularly interesting because they suggest the possibility of a psychological explanation of cancer. Since extraversion is to a considerable extent determined by inheritance (e.g., 3), it is possible that there is some unknown constitutional factor which predisposes a person to develop extraverted behavior patterns, to smoke, and to develop cancer. Such a theory would explain several curious facts, including the association between cigarette smoking and *all* types of cancer, the absence of association between pipe smoking and cancer, and the association between cancer and extraversion.

The present paper follows up Eysenck's results by posing this question: is it possible that the marked national differences in smoking from one country to another might reflect the degree of extraversion in the population? Naturally it would be expected, on the basis of Eysenck's theory, that such an association would exist.

B. METHOD

Statistics of national consumption of tobacco of various kinds have been compiled (4). National levels of extraversion can be obtained from Cattell's 16 Personality Factor data, which is available for a number of countries and is on file in Cattell's Laboratory at the University of Illinois. These questionnaire results are taken from random samples of male university students. It is appreciated that these do not necessarily represent the whole of the population. Nevertheless, truly random samples of a nation's population are not

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easy things to come by and male university students may be as good a sample as any. Scores on Cattell's test are available for eight advanced westernized countries, as shown below. Scores are also available for a few underdeveloped countries, such as Ghana, but these differ from advanced countries in so many respects that comparisons seem unprofitable.

So for the purposes of this study we obtained the extraversion scores for each country by using Cattell's formula. In addition, calculations have been made of national anxiety levels; Cattell's second order factor of anxiety is closely associated with Eysenck's factor of neuroticism but not identical with it. The next step was to calculate correlations between the national levels of extraversion and anxiety and cigarette and tobacco consumption.

C. Results

The extraversion and anxiety scores, respectively for each country, were found to be as follows: U.S.A., 5.54, 3.8; U.K., 5.24, 2.9; Ireland, 5.03, 2.6; New Zealand, 5.00, 4.1; Canada, 4.93, 4.4; Germany, 4.76, 6.9; Australia, 4.72, 4.4; Japan, 3.08, 9.2.

The correlations (r) between national personality levels and tobacco consumption are Extraversion $\times$ Tobacco Consumption, $+0.69$ ($p < .05$); Extraversion $\times$ Cigarette Consumption, $+0.58$ ($p < .10$); Anxiety $\times$ Tobacco Consumption, -0.52 ($p < .10$); Anxiety $\times$ Cigarette Consumption, -0.57 ($p < .10$). It will be noted that all correlations are high and the correlation between total tobacco consumption and extraversion is statistically significant at the five percent level. The data for this correlation are displayed in detail in Figure 1.

D. Discussion

These results lend some support to Eysenck's original findings, although two discrepancies may be pointed out. The first is that the correlation between extraversion and total tobacco consumption is higher than that with cigarette smoking alone. This is the opposite of what might be expected on the basis of Eysenck's findings that pipe smokers tend to be introverted, since if this held internationally it is obvious that its effect should be to reduce the correlation. Two possibilities might explain this discrepancy. First, cigar smoking probably plays an important part in international data on tobacco consumption, and we do not have data at the individual level of the personality correlates of cigar smoking. If extraversion is associated with cigar smoking, our international data would be quite simply explained. Another possibility is that it is only in Britain that introverts smoke pipes. If extraverts smoke pipes in

other countries, or if pipe smoking was a much less important means of consuming tobacco, the correlation would again be explained.

Second, the correlations between national anxiety levels and tobacco consumption are not entirely congruent with Eysenck's findings of no correlation between smoking and his construct of neuroticism. Of course anxiety and neuroticism are not entirely the same thing, and this could explain the dis-

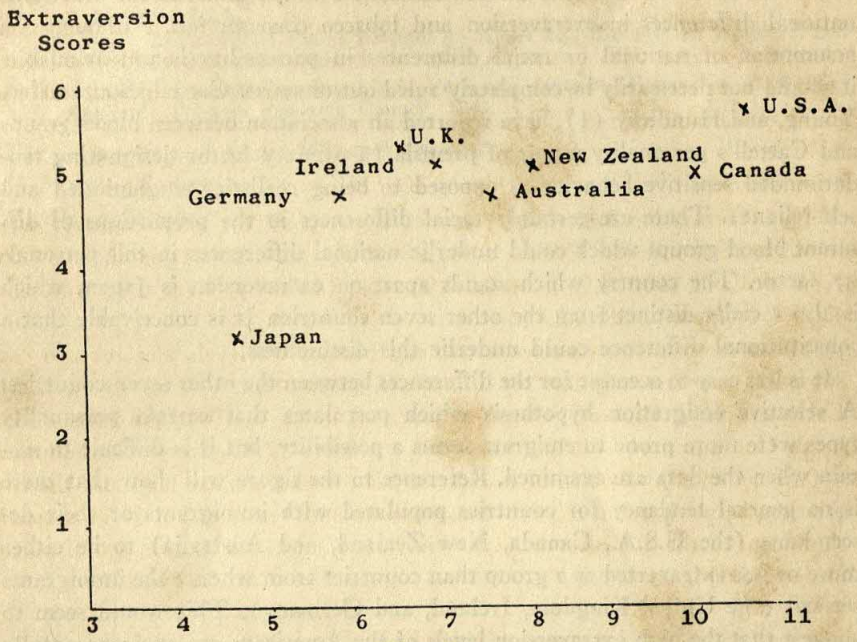

FIGURE 1
NATIONAL EXTRAVERSION SCORES AND POUNDS OF TOBACCO CONSUMED PER ADULT PER ANNUM, 1961

crepancy. Or the correlations may be chance ones. On the other hand, it is not implausible that anxious people should tend not to smoke and there are several reasons for this. One is that smoking is a stimulant and has the effect of raising anxiety levels: for this reason those who are already anxious would probably be less attracted to this kind of drug. It is also probable that the anxious are more frightened of death and tend to refrain from smoking on this account.

More generally it is doubtful whether our results throw much additional light on the problem of the causation of cancer. It is uncertain whether smoking is a comparatively superficial manifestation of the extraverted personality,

to be explained in terms of the extrovert's sociability or lack of fear of the possible consequences of smoking; or whether there is some constitutional factor, probably associated with low arousal, which predisposes an individual to extraversion and smoking habits. The latter theory is the more interesting from the point of view of the possible causes of cancer. To accommodate the international differences in extraversion and smoking we should have to assume that there are national constitutional differences which underlie the consistent national differences in extraversion and tobacco consumption. Although the assumption of national or racial differences in personality is unfashionable, it should not necessarily be completely ruled out of court. Cattell, Boutourline, Young, and Hundleby (1), have reported an association between blood groups and Cattell's personality factor of premsia (a primary factor designating tenderminded sensitive behavior as opposed to being realistic, toughminded and self-reliant). There are certainly racial differences in the proportions of different blood groups which could underlie national differences in this personality factor. The country which stands apart on extraversion is Japan, which is also racially distinct from the other seven countries. It is conceivable that a constitutional difference could underlie this distinctness.

It is less easy to account for the differences between the other seven countries. A selective emigration hypothesis which postulates that certain personality types were more prone to emigrate seems a possibility, but it is difficult to sustain when the data are examined. Reference to the figure will show that there is no general tendency for countries populated with immigrants or their descendants (the U.S.A., Canada, New Zealand, and Australia) to be either more or less extraverted as a group than countries from whence the immigrants set sail (the United Kingdom, Ireland, and Germany). This would seem to suggest that the high extraversion levels of the Americans are environmentally determined and the high consumption of tobacco could be just a reflection of this extraversion. But since the isolation of one causal factor does not preclude the operation of others, such a conclusion would not finally close the door on a constitutional explanation of extraversion, smoking, and cancer.

E. Summary

It has been found that smoking is associated with extraversion. The present paper extends this finding by demonstrating that the association holds internationally: in nations where the level of extraversion is high, the consumption of tobacco is also high. It is not certain whether smoking should be regarded as a comparatively superficial manifestation of the extraverted personality, or

whether there is some unknown constitutional factor responsible for extraversion, the tendency to smoke, and the predisposition to cancer.

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A CROSS-CULTURAL AND CROSS-LANGUAGE COMPARISON OF DOGMATISM SCORES* [1]

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A. INTRODUCTION

The Dogmatism scale was designed to investigate the formal and structural characteristics of belief systems, and scale items were selected to avoid specific idealogical and culture-bound content (16). Since the D scale is also sensitive to subcultural differences (1), it would seem to be a particularly suitable instrument for cross-cultural use in non-Western areas. The only relevant study known to the author is that by Chi (5), who found that the scores of Vietnamese students (on a translation of the D scale) were significantly higher than those of British and American students. The F scale has been more widely used for cross-cultural comparisons and it has been found that Arab, African, Brazilian, Chinese, and Indian subjects obtain significantly higher scores than American subjects (13, 14, 15). In view of the relationship between F and D scale scores (11), similar results might be expected from the D scale.

However, although the largely culture-free content of the D scale removes some of the problems of cross-cultural comparison, the major problem of language differences arises with any verbal instrument. There are two possible methods which can and have been used: keeping the English version and using bilingual subjects, or making a translation. Both methods present some obvious difficulties, and evidence from studies of bilingualism and linguistic relativity (4, 7, 8, 12) suggests that we should not assume equivalence of measurement by either method. Meade and Whittaker used both English language and translated versions of the F scale in their study of authoritarianism in six cultures (13). They do not give information about the language backgrounds of their subjects, but from the point of view of language differences their comparisons are made between three versions of the scale (English, Hindi, and Portuguese) and at least four different linguistic backgrounds (native English, second language English, Hindi, and Portuguese). Since there might be important differences between second language English speakers in Hong

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[1] Formerly at the University of Hong Kong.

Kong, Rhodesia, and the various Arab countries (for example in terms of the relationship between first and second languages), the results of this study could be a function of six different versions or interpretations of the F scale items. These possible differences might or might not make a significant contribution to overall scores, but enough evidence is available to suggest that close attention should be paid to possible differential effects of language in any cross-cultural study using verbal instruments. The present study was designed to compare Dogmatism scores of Hong Kong Chinese students with scores of British students, and also to compare the scores of Chinese-English bilingual students on both the English language scale and a Chinese translation. It thus combines both cross-cultural and cross-language comparisons to explore possible effects of language differences in cross-cultural measurement.

B. Method

1. *Subjects*

Hong Kong subjects were 101 students at the University of Hong Kong, 24 males and 77 females whose average age was 19 years. All were native Cantonese speaking but had been educated in English language schools from the age of about 12, having previously learned English as a second language. From the information obtained about the subjects' language experience, and also from experimental evidence (6), it is presumed that these subjects are coordinate bilinguals as defined by Ervin and Osgood (8). British subjects were 82 students at the University of Aberdeen, 16 males and 66 females with an average age of 19 years.

2. *Translation*

Translation from English into Chinese is a difficult procedure and every effort was made to get a translation which conveyed the meaning of the original in a style of written Chinese comparable to that of the original. Five people were involved independently in preparing the translation. The final Chinese form, when translated back into English, was surprisingly close to the original, though a few of the items presented considerable difficulty, particularly those using colloquial expressions. As an example of the translation, three items are quoted with the retranslation from Chinese.

1. (E) The main thing in life is for a person to want to do something important.
   (C) The most essential thing to do in life is to accomplish something important.
2. (E) If a man is to accomplish his mission in life it is sometimes necessary to gamble "all or nothing at all."

(C) A person who wants to fulfill the mission of his life has to stake everything in one throw.

3. (E) Most people don't give a damn for others.
(C) Most people have no concern for others.

3. *Administration*

The two versions of the scale were administered to the Hong Kong subjects with an interval of about three months, half having the English version first and half the Chinese version first. Instructions were given in English in both cases. In both Hong Kong and Aberdeen, Form E of the scale was used (40 items) and no additional items were included.

TABLE 1
COMPARISON OF BRITISH, HONG KONG ENGLISH LANGUAGE AND HONG KONG CHINESE LANGUAGE DOGMATISM SCORES

Language	Mean score	Standard deviation	Reliability[a]
A. British ($N = 82$)	144.7	24.5	.87
B. Hong Kong English language ($N = 101$)	177.9	21.5	.75
C. Hong Kong Chinese language ($N = 101$)	191.7	21.2	.77

Note: Significance (two-tailed tests): A-B, $t = 9.7$, $p < .01$; B-C, $t = 7.8$, $p < .01$; A-C, $t = 13.8$, $p < .01$.
[a] Split-half coefficients.

C. RESULTS AND DISCUSSION

Mean scores and reliability coefficients for British subjects and for Hong Kong English language and Chinese language versions are shown in Table 1. Reliability coefficients are of the same order as those reported by Rokeach (16).

Both of the Hong Kong mean scores are significantly higher than the British scores, a result which is congruent with Meade and Whittaker's finding for the F scale in Hong Kong. The Hong Kong scores are also significantly higher than all mean scores reported by Rokeach, with two exceptions (16). The Hong Kong English language score does not differ significantly from that of Rokeach's English Worker group (175.8) and is significantly lower than that of his VA domiciliary group (183.2). Both Hong Kong mean scores are significantly lower than the mean score of Vietnamese students at Saigon University reported by Chi (5), but the Saigon result refers to a Vietnamese translation of the D scale which may not be comparable to either the English scale or the Chinese translation.

It would appear from this comparison that the Hong Kong students are more dogmatic or closed-minded than students in Aberdeen, but the design of

the D scale is such that higher scores could result from an acquiescent response set. Since the F scale has the same design, Meade and Whittaker's Hong Kong result could be interpreted in the same way; and one might conclude that Hong Kong students simply agree more with statements presented to them than do American or British students. This requires further investigation.

In the present study there is a significant difference between scores of the same subjects of the English language scale and the Chinese translation. Quite clearly the translation had a marked effect on responses. At least three possible reasons may be suggested for this effect:

1. It may be that the translation is measuring something different from the original. Gordon and Kikuchi (10), Gordon (9), and Berrien (2) have drawn attention to the problems which arise in translation of paper-and-pencil personality tests for cross-cultural comparisons. Apparent equivalence of items in the original and a back-translation is not in itself sufficient evidence that the translated scale measures the same construct as the original scale. Use of bilingual subjects is, of course, one way of assessing the comparability of original and translated forms of a scale. The correlation between the English and Chinese language versions of the D scale is .66, and correction for attenuation gives a correlation of .86. This result suggests that the difference in mean scores obtained in this study is not due simply to nonequivalence of the original and translated scales.

2. In view of the relationship between high Dogmatism scores and agreement with items in the D scale, it might be that Hong Kong subjects were more inclined to agree with items presented to them in their native language. In this case it is possible to examine responses to both versions of the scale for evidence of an acquiescent response set affecting Chinese language scores. The assumption was made that, if the score increase from English to Chinese was due to acquiescent response set, then the increase in scores (i.e., in agreement) should be equally distributed over all items. This is not the case; the score increase from English to Chinese is accounted for by only 14 items. If these 14 items are eliminated from the scale, mean scores are 118.8 for English and 119.1 for Chinese. Examination of the 14 "changed" items does not suggest that they have any special characteristics other than the score increase. This increase could have occurred because the item scores in English were exceptionally low by comparison with the other English language items. However, the mean score in English for the 14 "changed" items was 4.2 and for the 26 "unchanged" items 4.4 (the possible range of item scores being from 7 to 1). The correlation between "changed" item scores and total scores is .76 for

the English version and .75 for the Chinese version. It would therefore seem that these items are not inconsistent with the total scale.

3. The most direct way of interpreting the difference in scores is in terms of a difference in degree of dogmatism. This would mean that Chinese students are more dogmatic when responding in Chinese than they are when responding in English. The effect of language in this study could be reflecting a more general effect of cultural differences between a relatively less authoritarian English language culture and a relatively more authoritarian Chinese language culture. It might be that coordinate bilinguals, who have learned their two languages in distinct settings and live in a bicultural environment, can maintain two somewhat differently structured belief systems (as defined by Rokeach), reflecting the contexts in which the two languages were acquired and perhaps more generally the two language cultures. The present result might thus be related to the results reported by Ervin of French-English bilingual responses to TAT pictures (5) and those reported by Botha of Arab-French bilingual responses to a measure of values (3). However, the present evidence is not sufficient to justify more than using this interpretation as a tentative hypothesis for further investigation. Language has a significant effect on responses but, because complex verbal stimuli were used, it is not clear what the nature of a language-cognition interaction might be. The correlation between the English and Chinese language scales is quite high, but this does not mean that either scale measures dogmatism in Hong Kong. Furthermore, the fact that the higher Chinese language scores resulted from only 14 of the 40 items suggests that the difference in mean scores may be due to the specific content of these items and not to a difference in belief system structure.

Although the available data do not supply an explanation for the difference between English and Chinese language responses, the fact that responses do differ would seem to have important implications for cross-cultural research using verbal instruments, and possibly also for research in the field of linguistic relativity. The result demonstrates the need for caution in using the D scale and similar instruments in cross-cultural research.

D. Summary

A cross-cultural comparison was made between Dogmatism scores of British and Hong Kong Chinese students. The mean D score of Hong Kong subjects was significantly higher than the mean score of British subjects. It is suggested that Hong Kong subjects may be more closed-minded than British subjects, or they may be more acquiescent. For Chinese-English bilingual subjects the

mean score on a Chinese translation of the D scale was significantly higher than the mean score on the English language scale. This last finding is considered to have important implications for cross-cultural measurement using verbal instruments, and it may also be relevant to studies in linguistic relativity.

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CROSS-CULTURAL RESEARCH WITH MATCHED PAIRS OF SOCIETIES* [1]

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A. INTRODUCTION

Barry, Child, and Bacon (7) reported a relationship of subsistence economy to child training in a sample of 79 societies. High accumulation of food resources generally characterized the economy of societies with high pressure toward compliance in child training, whereas low accumulation of food was related to child-training pressure toward assertion. Subsequently, Whiting (19) has pointed out that the relationship might be attributable to differences between major regions of the world rather than representing a direct, cause-and-effect relationship between economy and child training; because the societies in Africa and East Eurasia were mostly high in accumulation of food resources, whereas the North and South American societies were mostly low in that respect; the Insular Pacific was the only region with a substantial number of societies with both types of subsistence economy. Barry (3) and Textor (18) have shown a variety of cultural traits for which the frequency of occurrence in Africa and East Eurasia differs greatly from the frequency in North and South America.

Whiting (19) proposed a test of the relationship between subsistence economy and child training for the societies within each region. The present paper reports on a more stringent control for regional and other differences by a method of comparisons between matched pairs of closely related societies. A valid criterion for such matching has been established by Murdock's (11) specification of 412 culture clusters in a world sample of societies. Since the societies of the same cluster are closely similar to each other in every known respect, a sensitive measure is required to detect differences between pairs of

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societies in the same cluster. The traits in which they differ are those which are established at an early stage of cultural differentiation because the societies of the same cluster generally are derived from a common ancestor within 1000 years ago (11, p. 412).

An important advantage of the comparison between matched pairs of societies is that it maximizes the independence of each pair of societies in relation to the similarity between the members of each pair. This method thereby represents a partial solution to the statistical problem first pointed out by Galton and more recently emphasized by Naroll (13, 14, 15, 16) that the various interrelationships among human societies invalidate the use of statistical tests based on the assumption of independent cases. In the present paper, the comparison of matched pairs of societies, developed by D'Andrade (16) to test for a spurious relationship between two variables, is adapted for measuring genuine relationships among cultural variables.

B. Materials and Methods

In the study by Barry, Child, and Bacon (7) a quantitative scale of strength of compliance training of children was derived from ratings of pressure toward obedience and responsibility in relation to ratings of pressure toward self-reliance and achievement. Barry, Bacon, and Child (6) have given detailed definitions and the summed scores of the two raters for these component measures. Independent classifications of subsistence economy by Murdock (9) were used for a four-category scale of food accumulation (7), based on the importance of agriculture and animal husbandry rather than hunting and fishing.

The use of Murdock's culture clusters (11) for matching pairs of societies was designed to maximize the cultural similarity between the matched pairs of societies while maximizing differentiation among the different clusters. Ten culture clusters each contained two of the societies from this sample. In four more clusters, each containing three of the societies, the matched pair was selected on the basis of the largest difference in compliance training. The society with the intermediate score in this variable, and thus omitted from the matched pairs, was the Zulu in Cluster 4, the Sotho in Cluster 5, the Ulithians in Cluster 247, and the Cheyenne in Cluster 316. In addition to the specification of 412 culture clusters (11), Murdock has defined 200 culture provinces (12) in order to provide a more stringent criterion for cultural differentiation among sampling units. Accordingly, when pairs of societies from more than one cluster were in the same province, the pair with the smaller difference in compliance training was omitted from the sample. The Pondo and Swazi (cluster

4) were thereby eliminated from Province 3 and the Hopi and Zuni (cluster 330) from Province 162.

The distinction between high and low accumulation of food resources (7) is similar to the classification of economy as food-producing or food-collecting (3, 10, 18). An expanded scale of the degree of food production, with a range of scores between zero and 10, is obtainable by adding together the scores for agriculture and animal husbandry in Murdock's (11) ratings of the relative importance of five subsistence activities. Since the total score for a society is always 10, ratings on the three measures of food collection (gathering, hunting, fishing) thereby detract from the ratings on the two measures of food production.

The present paper reports on two additional quantitative variables, rated for the same sample of societies. Infant indulgence is a measure of overall nurturance received during the first year of life, rated in the same study as were the measures of compliance training (6). Frequency of drunkenness, a measure of adult behavior obtained in a different study (2), is the sum of the judgments of two raters on the frequency with which an extreme behavioral reaction to alcohol would occur, if an unlimited supply of liquor were available year around.

For any of the variables, a single score is obtained from each pair of matched societies by calculating the difference between the members of the pair. A relationship between two variables is measured by the number of cases when the society which is higher in one variable is also higher rather than lower in the other variable. Therefore, each pair of matched societies comprises a single, independent case. Statistical significance is assessed by the binomial sign test (17).

C. Results

The societies are identified by the same cluster numbers, area codes, and names as in the Ethnographic Atlas (11). The matched pairs, in sequence according to Province number (12), include three in Africa, four in the Insular Pacific, and five in North America.

In each matched pair, the society with the higher score in compliance training is listed first. The wide range of scores in this variable provides a differentiation between the members of each pair, whereas in seven of the 12 pairs the matched societies do not differ in accumulation of food resources. In each of the five remaining pairs, the society with stronger compliance training has a higher food accumulation score, but the relationship falls short of statistical significance. However, the wider range of scores provided by the scale for food

production results in a different rating for all but two of the matched pairs. The member of the pair with stronger compliance training is also higher in food production in nine cases and lower in food production in only one case ($p < .05$).

Similarly consistent relationships with compliance training are found for the two remaining variables shown in Table 1. The member of the pair with stronger compliance training is higher in infant indulgence in eight cases and lower in only one ($p < .05$). The member of the pair with stronger compliance training is lower in frequency of drunkenness in six cases and higher in none ($p < .05$). The rating of drunkenness excludes the societies in which alcoholic beverages are not customarily used (Kwoma, Vanua Levu, Lau), and a dash is entered in place of a rating. The other instances of a dash denote cases in which the information was insufficient for a quantitative rating.

Most of these relationships among cultural variables are found also when the variables are correlated without regard to the matched pairs of societies. Compliance training shows a correlation of +.67 with food accumulation ($p < .01$) and of +.68 with food production ($p < .01$). The negative correlation of compliance training with frequency of drunkenness (—.48) is also in accordance with the comparisons between matched pairs. However, the correlation of compliance training with infant indulgence is only +.19, and food production shows a negative correlation (—.30) with infant indulgence, contrary to the positive relationship indicated by the comparisons between matched pairs.

D. Discussion

The comparisons between matched pairs of societies indicate the differences which emerge at an early stage of cultural evolution, generally within a few centuries after differentiation from their common ancestry (11). Since the matched pairs are closely similar in most characteristics, accurate and sensitive measures of cultural differences are needed. The four-point scale of food accumulation was unsatisfactory because the majority of the matched pairs did not differ from each other in this variable, whereas the 11-point scale of food production did differentiate most of the pairs from each other. The measure of pressure toward compliance, obtained by combining several quantitatively rated variables, provided an even wider range of variation so that all of the matched pairs of societies were differentiated from each other in this respect.

The comparisons between matched pairs of societies, each within the same culture cluster, have demonstrated that the relationship previously reported between pressure toward compliance in child training and accumulation of

TABLE 1

COMPARISONS BETWEEN MATCHED PAIRS OF SOCIETIES IN COMPLIANCE TRAINING AND OTHER CULTURAL TRAITS

Province	Cluster	Society	Compliance training	Food accumul.	Food product.	Infant indulg.	Frequency drunk.
3	6	Ab14 Lovedu	6.5	4	9	11	6
		Ab4 Thonga	— 2.5	4	8	7	12
4	5	Ab13 Tswana	8.5	4	9	11	6
		Ab6 Venda	6.5	4	8	9	9
12	26	Ad4 Kikuyu	6.0	4	10	9	4
		Ad3 Chagga	4.0	4	9	7	8
113	241	Ie3 Arapesh	4.0	3	7	13	—
		Ie12 Kwoma	— 3.5	2	5	11	—
117	247	If4 Ifaluk	6.0	3	6	12	3
		If2 Trukese	— 5.0	2	5	7	—
128	269	Ih8 Vanua Levu	11.5	2	6	11	—
		Ih4 Lau	6.0	2	6	14	—
129	274	Ii1 Samoans	5.0	3	7	12	—
		Ii3 Pukapukans	—12.0	2	6	9	—
154	315	Ne6 Mandan	— 3.5	2	5	—	—
		Ne4 Crow	—13.5	1	0	11	8
155	319	Nf3 Omaha	— 1.5	2	4	12	8
		Nf2 Winnebago	— 5.0	2	3	12	11
160	316	Ne9 Arapaho	— 2.0	1	0	12	7
		Ne3 Comanche	—12.0	1	0	11	—
161	327	Nh1 Chiricahua	0.0	1	0	12	5
		Nh16 Jicarilla	— 6.5	1	2	9	6
162	331	Nh3 Navaho	4.5	3	7	10	7
		Nh17 Western Apache	—10.0	1	3	10	10

food resources in the subsistence economy (7) is not entirely attributable to the regional variation in both traits. The similarity between the matched pairs of societies in most other respects also minimizes the likelihood that the relationship between the two variables is due to a mutual relationship of both of them to another variable. However, this evidence for a cause-and-effect link between the two variables does not specify which is the cause and which is the effect. Barry, Child, and Bacon (7) suggested that the child training evolves as an adaptation to the type of subsistence economy, but the opposite direction of causation seems equally plausible, as has been pointed out elsewhere (5). When the environment and technological capabilities provide the opportunity for the development of a food-producing economy, the society which selects a higher degree of food production might be the one which already has stronger compliance training. It seems probable that the child training practices and the subsistence economy mutually affect each other during a continual process of cultural adjustment and evolution (5). However, a historical analysis of the sequence of cultural changes, such as has been undertaken for some traits of social organization by Murdock (8, pp. 184-259), might reveal the direction of cause-and-effect relationships between child training and economy after matched pairs of societies initially become differentiated from their common heritage.

The inverse relationship of frequency of drunkenness to compliance training is consistent with a prior report (1) of a negative correlation between these variables ($r = -.33$, $p < .05$) without regard to matched pairs, in a sample of 44 societies which included the ones reported in the present study. A proposed interpretation (1, 4) is that strong compliance training satisfies dependency needs and thereby reduces the motivation for heavy drinking. It seems reasonable to expect that infant indulgence also would be positively related to the cultural traits which signify satisfaction of dependency needs. However, the positive relationship of infant indulgence to compliance training and to food production, seen in the comparisons between matched pairs, is apparently limited to the incipient differences between closely related societies. Textor (18) has reported a statistically significant negative correlation between infant indulgence and food production without regard to matched pairs, in 71 societies which included most of the present sample. The apparent development of this inverse relationship at a later stage of cultural differentiation suggests that it is due to a common inverse relationship of both variables to another variable after the societies have become different in many respects, rather than indicating a cause-and-effect inverse relationship between these

two variables. This additional variable might be the presence of social stratification or of governmental authority beyond the local community. Most of the matched pairs of societies did not differ from each other in these measures of social organization; but without regard to matched pairs Textor (18) has reported that both of these measures are positively correlated with food production and negatively correlated with infant indulgence.

Galton's problem cannot be solved completely in cross-cultural research, because human societies are not completely independent of each other. The common heritage of diverse human groups is more recent between some societies than between others. Various cultural traits have been shown to diffuse over wide areas of the earth (15). However, the method of matched pairs, as used in the present paper, appears to maximize the degree of independence of different pairs of societies in different culture provinces, in relation to the high degree of similarity between the members of the pair in the same culture cluster. A further advantage of the method of matched pairs is that it makes use of the data which are often available on closely related societies, whereas the methods proposed by Naroll (13, 14, 16) limit the sample to a small number of societies, generally spaced far apart from each other along an arbitrarily chosen strip of the earth's surface.

E. Summary

Comparisons between matched pairs of closely related societies maximize the relative degree of independence of the different pairs in relation to the similarity between the members of each pair. A relationship between child training and subsistence economy, previously demonstrated for a sample of 79 societies, was likewise found in comparisons between 12 matched pairs of closely related societies from the same sample. The member of the pair with stronger pressure toward compliance rather than assertion in child training generally also had a greater emphasis on food producing than on food collecting in the subsistence economy. Since the matched pairs of societies generally had become differentiated from their common ancestry within the past 1000 years and remained closely similar in most respects, an accurate, sensitive measure with a wide range of variation in scores was needed to show consistent differences between the pairs. However, the close relationship between the matched pairs of societies enhances the likelihood that the difference in one of these variables causes the other instead of both being due to a common relationship with a third variable. Either of the opposite directions of causation seems plausible. A greater satisfaction of dependence needs may account for

the further finding that the member of the pair with stronger compliance training and food production generally was characterized by high infant indulgence and low frequency of drunkenness. The opposite, negative correlation between food production and infant indulgence, found in tests of these variables without regard to matched pairs of societies, is apparently due to a common, inverse relationship of both variables to a third variable, at a more advanced stage of cultural differentiation. Such a causative variable might be social stratification or governmental authority beyond the local community, both of which are correlated positively with food production and negatively with infant indulgence.

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THE DEVELOPMENT OF GESTURES IN THREE SUBCULTURAL GROUPS*

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A. INTRODUCTION

Although the interest in nonverbal communication has increased in recent years, little in the way of systematic data has appeared in the literature. The beginning actor is quickly aware that he must learn far more than his script if he is to communicate effectively. Exposure to other national groups reveals obvious differences in voice quality, gestures, and facial expression, as well as in language. LaBarre (3) cited gestures in the Masai and in Brazilians that differ from those used by Americans. In one of the few attempts to record systematically cultural differences in gestures, Boas *et al.* (1) found that in the U.S. the gestures used by immigrants from Southern Italy differed from those used by Eastern European Jews. They also found that both groups changed in their gestures as they became assimilated into the American culture. White (6), Brewer (2), and Ruesch and Kees (5) have mentioned cultural differences in gestures.

Available information on gestures is limited and information on the development of gestures is even more limited. Michael and Willis (4) found that the first year in school is accompanied by a sharp increase in the number of gestures that a child can accurately use and identify. They also found that middle class children were more accurate in transmitting and interpreting gestures than lower class children of the same age and sex. Finally, they found that boys were more accurate in interpreting gestures than girls. All children used in the study lived in the Midwestern United States. The present investigation is an extension of that study and will be referred to throughout the remainder of this paper as the Midwestern study.

Since World War II, military personnel have been allowed to take their families with them on many overseas assignments. Their children attend American schools and usually live in American communities on or off military posts. They are exposed in varying degrees, however, to the foreign culture. Those children living in the community off the military post, of course, have

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much greater exposure to the host culture than those living on the post. Boas *et al.* (1) were able to identify changes in the gestures of immigrants as they became assimilated into the American culture. The purpose of the present study is to extend the observations of the Midwestern study to children living on a U.S. Army post in Germany, to other American children living in a German community, and to German children living in the same community. It was thought that this setting provided an opportunity to examine the possible changes in the development of gestures as a function of differential exposure to two cultures.

B. Method

1. *Subjects*

The variables of sex, two educational levels, and three cultural groups were combined to create 12 study groups. There were 10 subjects in each group for a total of 120 subjects. The educational levels were one year of schooling and no prior schooling. The three cultural groups were children of U.S. Army enlisted personnel living on the Army post in Germany, children of U.S. Army officers living in a German community near the Army post, and German children living in a well-to-do German community, the same community as that of the second group. All children with one year of schooling had completed kindergarten, but had not begun the first grade and were five, six, or seven years of age. Both U.S. Army groups were racially mixed. All of the German children were white.

2. *Procedure*

The procedure was identical to that used in the Midwestern study. The 12 gestures most frequently used at play and in the classroom by Midwestern children ranging in age from four to seven were used in this study. The 12 gestures were those used to indicate "go away," "come here," "yes," "no," "be quiet," "how many," "how large," "shape," "I don't know," "hello," "goodbye," and "raised hand for attention." Each child was interviewed independently. An interpreter from Germany was used with the German children. The instructions used were identical to those used in English.

Two observers working independently were present at all sessions. Both observers were American. The purpose of the interview was to determine whether the child could transmit each of the 12 gestures accurately and also whether the child could identify the 12 gestures correctly when they were transmitted by the interviewer. In cases where the gesture had a German equivalent, the American form was used for all subjects because the authors

were interested in comparing them with the children in the Midwestern study. The observers were given a list of the gestures to be used and asked to record the gesture that they thought the child was transmitting and the accuracy with which the child identified the gestures of the interviewer. The children were first asked to transmit each gesture in an order randomly determined for each child. The children were instructed to use their hands, arms, or fingers only. Instructions were standardized. For example, to elicit the gesture for "come here," the instructions were "If you had to be quiet and you were over there (pointing away) and you wanted me to come, what would you do?" When the interviewer was transmitting, the child was asked each time, "What does this mean?"

Since the gestures used were those most frequently observed in children from the Midwestern U.S., it was hypothesized that the children exposed primarily to an American culture (those living on the post) would be the most accurate, followed by the Americans living in the German community, and finally by the German children. It was also hypothesized that in agreement with the results obtained in the Midwestern study, children with one year of schooling would be clearly superior to those with no prior schooling, and that boys would be superior to girls in the interpretation of gestures. Finally it was hypothesized that, as in the Midwestern study, the children would be more accurate in interpreting gestures than in transmitting them.

A $2 \times 2 \times 3$ analysis of variance of the accuracy scores for transmission and for interpretation was used in comparing the groups.

C. Results

The correct gestures were easily identified by the observers, and interobserver reliability closely approached 100 percent for all gestures for all children. Perfect scores for transmission were obtained by 37 subjects and for interpretation by 66 subjects. The distributions of accuracy scores were somewhat truncated because of the perfect scores achieved by many of the children. In order to test the usefulness of the analysis of variance with this type of distribution, chi-square tests were run for each main effect. The distributions were divided at the mean to obtain frequencies for the chi-square tests. The results of the chi-square tests were quite similar to those obtained with the analysis of variance, so only the latter are reported here. The sources of variance and the p values for the significant Fs were as follows: for transmission, education (.01) and cultural group (.05), for interpretation, education (.01), cultural group (.01) and education $\times$ cultural group (.01). The means for the significant relationships and for the education $\times$ cultural group interac-

tion are presented in Table 1. The differences between children with one year of school and those not having attended school were quite similar to those obtained with the Midwestern children. The hypothesized relationship between accuracy and cultural similarity to the Midwestern group was not obtained. As the means in Table 1 indicate, the children living off the post were superior in gestural development, followed by the German children, with the children living on the post being least accurate. This was true for both transmis-

TABLE 1
MEAN GESTURAL ACCURACY SCORES

Group	Transmission	Interpretation
No School		
On-post American	5.85	7.65
Off-post American	7.00	10.25
German	6.85	8.80
Total No School Group	6.57	8.90
One-Year School		
On-post American	10.15	11.95
Off-post American	11.85	12.00
German	10.60	11.80
Total one-year group	10.87	11.92
Cultural Group Totals		
On-post American	8.00	9.80
Off-post American	9.42	11.12
German	8.72	10.32

sion and for interpretation. The significant interaction between education and cultural group in interpretation was most likely due to the limited number of gestures observed in this study. The sample means indicate that the significant interaction occurred because the on-post American children make a much larger gain in accuracy, when comparison is made of the groups with no prior school and one year of school. However, the off-post Americans and the Germans had high scores with no prior school and there was little room for improvement. The transmission means in Table 1 show that there was more room for improvement here and the significant interaction did not appear.

There was no support for the hypothesis that males would be superior to females in the accuracy with which they interpreted gestures. The difference was in the same direction as that obtained in the Midwestern study, but was not significant.

All of the groups in the present study showed a marked superiority in the interpretation as compared to the transmission of gestures. Perhaps all chil-

dren understand the gestures used by others well before they are able to use them accurately in communication.

A rather large increase in accuracy of gestural communication with the first year in school appeared in all three groups in this study as it did in all groups in the Midwestern study. It may be generally true that this period is an important one for the development of communication.

An interesting result occurred in the present study that had not been anticipated. When the children living off the post were asked to transmit gestures, they gave the American gesture; and, if the German gesture with the same meaning differed, most of these children volunteered the German gesture. For example, they gave the German gesture for "hello" with a raised arm and clenched fist, the German gesture for "pointing" with the little finger rather than the index finger; and in showing "how many" they began to count with the thumb rather than the index finger. These children also offered to shake hands regardless of their sex, and in spite of the fact that the observers were women. Similarly, the German children first transmitted the German gestures, but then usually volunteered the American gestures. In contrast, the American children living on the post seldom volunteered the German gestures.

Although the German children did not differ from the Midwestern sample with regard to accuracy, they did differ in rate of gesturing. The observers noted in many hours of watching the German children at play that their rate of gesturing was much less than that of the Midwestern children. It appeared to the observers that this was related to the greater adult supervision of German children in this age group.

D. Discussion

The primary hypothesis in this study—that greater exposure to a single culture will result in greater accuracy in the use of the gestures of that culture—was not supported. This does not seem to agree with the results reported by Boas *et al.* (1), but there are some important differences between the studies. Boas *et al.* recorded the gestures that his subjects used in actual social situations. In the present study, however, the gestures that the subjects recognized and could use were recorded. There may be a difference between the gestures we actually use and those we are capable of using. The off-post Americans and Germans had an opportunity to learn gestures from both cultures and at least to some extent did learn them. Boas *et al.* studied adults; the present study involved children. Perhaps children are better able to learn and use two or more communication systems at the same time. Differences in socioeconomic groups might be important in the results obtained here. As it

was pointed out, the children living off the post were officers' children, while those living on the post were children of enlisted men. No systematic attempt was made to assess the socioeconomic group of the German children, but they were quite well dressed and were attending nursery school or kindergarten in one of the highest status areas of the German community. It has been suggested that brighter children have superior verbal abilities and therefore need gestures less. This explanation, however, does not fit the results obtained in the Midwestern study. It has been well established that middle class children are markedly superior to lower class children in verbal development; and in the Midwestern study the middle class children were also significantly more accurate in both the transmission and interpretation of gestures. On the basis of the present study and the Midwestern study, it would appear that middle class children are more accurate in gestural as well as verbal communication.

In the Midwestern study we were surprised to obtain evidence of male superiority in the development of gestural interpretation, since many sources of evidence have shown a female superiority in the development of verbalization. The reliability of that result may be questioned in view of the fact that there was no significant sex difference in any of the three groups in the present study. A factor that may be important here is that American children in Germany tend to share common activities regardless of sex to a much greater extent than do American children living in the U.S. The means for all boys in the present study for interpretation accuracy scores was 10.47, and for girls the mean was 10.33. In the Midwestern sample the equivalent means were 10.75 for boys and 9.58 for girls. The greater accuracy for girls accounts for the difference in the two studies.

E. Summary

American children living on an Army post in Germany, American children living off the post, and German children were tested for their ability to interpret and to transmit gestures most frequently used by a group of children in the Midwestern United States. It was found accurate use of these gestures could not be predicted from the amount of exposure to an American culture that the three groups had experienced. Socioeconomic differences were found to be important in gestural accuracy in a previous study and appeared to be important in the present study as well. Both the American and German children who had been exposed to both cultures learned the gestures of both cultures. There were no sex differences in gestural accuracy obtained for any of the three groups observed.

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TRUST AND THE PRISONER'S DILEMMA GAME*

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A. INTRODUCTION

Behavior in non-zero-sum games has received increasing attention in recent literature. However, the conclusion that only a rather limited number of personality and attitudinal variables have been shown to be related to cooperative or trusting behavior in these games has been offered by Gallo and McClintock's (4) recent review. This conclusion does not attenuate the possibilities of the game situation in providing a means to investigate unexplored aspects of interpersonal relations.

The most common type of non-zero-sum game is the Prisoner's Dilemma Game (PDG). The PDG, unlike a zero-sum game, is not simply a situation in which that which one side loses the other gains. In the PDG there is always some specific pattern of probabilities of strategies which constitute rational play (7). This rational play minimizes the maximum loss any player can sustain.

Within the framework of the PDG it has been reported that authoritarianism was negatively related to trusting and trustworthy behavior (2), and internationalism (rather than isolationism) was positively related to trusting behavior (8, 9). Greater cooperative behavior has been found for subjects high in need abasement and deference (10), altruism (15), general favorability, and in seeing others as trustworthy, altruistic, and independent (16). It has also been shown that increased cooperative behavior occurs as a consequence of specific promises to cooperate (3), the clarity of the communication regarding the intention to trust (6), and, in a negotiation study, to higher manipulated trust conditions (11).

Several criticisms of this research seem warranted. A cooperative response has frequently been equated with the variable of trust, and the number of

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[1] The authors wish to thank Dr. Dennis O'Donavan for his help in analyzing the Trust Test and for the reliability measures. Mr. Kenneth Edwards, Miss Lois Feuer, Miss Kathleen McDonald, and Dr. Matthew W. Steele also helped in different phases of this study.

trials or iterations has been quite small. It appeared more feasible to approach the variable of trust through an analysis of sequential responding and its relation to a measure purported to assess trust independently of the game behavior. Rapoport and Chammah (12) have offered an intuitive interpretation of four measures derived from a stochastic analysis of data obtained from iterations in the PDG. These variables have been interpreted as representing the interpersonal variables of "trust," "trustworthiness," "forgiveness," and "repentance." Whether such a dispositional analysis of the data is plausible is in itself a research problem. Table 1 presents the choice sequences and the intuitive terms applied to them.

TABLE 1
TWO-STATE STOCHASTIC ANALYSIS OF A SYMMETRICAL MATRIX

	Trial 1		Trial 2	
State	Player 1's responses	Player 2's responses ("dummy")	Player 1's responses	Disposition
1	C	C	C	Trustworthy
2	D	C	C	Repentance
3	C	D	C	Forgiveness
4	D	D	C	Trust

That the terms "trust" and "trustworthiness" have at least face validity is implied in the frequent free use of these terms by *S*s in a 40-trial coalition game (5). In a more formal attempt to justify such dispositional terms, Tedeschi, Steele, Gahagan, and Aranoff (14) studied the relation between predictions, intentions, and strategy choices and found a set of correlations which supported the intuitive analysis of the stochastic variables.

The present study was designed to explore further the relationship between PDG variables and a self-report description which at least in name purports to measure like variables. The aims were then to broaden the base of variables to which PDG behavior might be a function and provide mutual cross-validation of intuitive analysis and the trust scales. It was predicted that significant intercorrelations would be obtained between the two measures. The relationship between the PDG variables and a test presumed to measure a sample of values or attitudes was also investigated.

B. METHOD

1. *Subjects*

Thirty female and 40 male introductory psychology students at the University of Miami, who fulfilled a course requirement by participating in the

experiment, served as *S*s. Each *S* was randomly assigned to one of seven experimental conditions in which the *E* played a preplanned set of strategies (see Table 2). In group 1, *E* matched *S*s' strategy choice on each trial, in effect producing a two-cell game. For group 2, *E* matched *S*s' noncooperative or defective choices all the time, but *E* matched the cooperative choices only three out of four times. In group 3, *E* matched *S*s' C choices all the time, but matched the D choices only three out of four times. For group 4, *E* matched both *S*s' C and D choices three out of four times. In group 5, *E*

TABLE 2
EXPERIMENTAL DESIGN INDICATING "REWARD" AND "PUNISHMENT" SCHEDULES

Groups	C Percent of trials reinforced for cooperative responses	C Percent of trials punished for cooperative responses	D Percent of trials reinforced for defection responses	D Percent of trials punished for defection responses
1	100	0	0	100
2	75	25	0	100
3	100	0	25	75
4	75	25	75	25
5	50	50	0	100
6	100	0	50	50
7	50	50	50	50

matched *S*s' C choices every other time and matched the D choice every time. Group 6 was the reverse of group 5. In the last group, *E* matched both *S*s' C and D choices every time.

2. *Apparatus*

The game apparatus, instructions, and general procedure used have been adequately described elsewhere (13), and the present study differed only in excluding practice trials. Prior to the 100 iterations of the PDG, each *S* was asked to complete the Test of Values (1) and the Trust Scales developed by O'Donavan. The Trust Test is reported to have a test-retest reliability coefficient of .76 and is divided into several subscales.[2] Most important for the current investigation was the division of trust into trust of others and trust of self. Total trust, locus of trust, rebel, and equanimity subscale measures are also provided by the Trust Test.

3. *Matrix*

The matrix used in this experiment was symmetrical with absolute payoff values of R = 85, T = 100, S = 35 and P = 40. The rules of the PDG

[2] Personal communication with Dr. O'Donavan.

were met by these values. [See (12, 14) for an explanation of the rules and symbols.]

C. Results

Although an analysis of variance F of 4.07 ($p < .002$) indicated differences between the groups on cooperative proportions, the focus of the study is on the stochastic variables. However, it can be said that the independent variable of varying strategies was effective in producing response differences.[3] A two-stage stochastic analysis was carried out which yielded significant group differences on only the "Trustworthiness" variable ($F = 6.290$ with 6 and 62 df, $p < .001$).

TABLE 3
Duncan Range Tests for the Stochastic Variable of "Trustworthiness"

Group means	7 .291	5 .417	4 .536	6 .538	2 .566	3 .639	1 .752	1%	5%
7		NS	**	**	**	**	**	.220	.167
5			NS	NS	NS	**	**	.231	.175
4				NS	NS	NS	*	.238	.181
6					NS	NS	*	.239	.185
2						NS	NS	.242	.189
3							NS	.245	.191

* $p < .05$.
** $p < .01$.

Duncan range tests presented in Table 3 show that group 7 *S*s were less trustworthy than the *S*s in any of the other groups, while group 1 *S*s displayed the most trustworthiness. Group 5 *S*s were less trustworthy than those from groups 1 and 3, and only groups 2 and 3 showed no less trustworthiness than group 1.

No significant correlations between the Test of Values and the Trust Scales occurred for either sex assessed independently or combined. The only correlation which appeared somewhat stable in the comparison of the Test of Values and the stochastic variables was between repentance and aesthetic attitude ($r = .48$), and this relationship was primarily characteristic of the males. It must be added here, however, this one relationship out of the 30 that were possible may be artifactual.

The major results of the study are represented by the correlations in Tables 4 and 5 between the stochastic variables and the trust measures of the Trust Scales.[4] Three of the possible 10 intercorrelations were significant for the

[3] Those interested in following up this result should refer to Tedeschi *et al.* (13, 14).

[4] The exclusion of some groups across the stochastic variables are in evidence because of the convention of using a proportion for a particular subject as an indicator

TABLE 4
PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE SUBSCALES OF THE TRUST TEST AND COOPERATIVE STRATEGY CHOICES, TW, F, R, AND T FOR BOTH MALES AND FEMALES COMBINED

PDG variables	Subscales of Trust Test					
	O	S	TT	R	E	L
Cooperations ($n = 70$)	.08	—.26*	—.08	—.08	—.11	.28*
Trustworthiness ($n = 69$)	—.11	—.41**	—.28*	.00	—.31**	.21
Forgiveness ($n = 36$)	.04	—.17	—.06	—.19	.12	.20
Repentance ($n = 38$)	.24	.18	.25	—.25	.24	.11
Trust ($n = 70$)	.30*	—.11	.14	—.11	.05	.40**

* $p < .05$.
** $p < .01$.

TABLE 5
PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE SUBSCALES OF THE TRUST TEST AND COOPERATIVE STRATEGY CHOICES, TW, F, R, AND T FOR FEMALES AND MALES

PDG variables	Subscales of Trust Test					
	O	S	TT	R	E	L
			Females			
Cooperation ($n = 25$)	.14	—.23	—.03	—.01	—.14	.32
Trustworthiness ($n = 25$)	—.26	—.33	—.35	.32	—.42*	—.02
Forgiveness ($n = 16$)	—.05	—.19	—.13	—.35	.03	.12
Repentance ($n = 15$)	.52*	.02	.39	—.54*	.45	.51
Trust ($n = 25$)	.49*	.03	.35	—.03	.14	.49*
			Males			
Cooperation ($n = 35$)	.05	—.25	—.09	—.16	—.06	.25
Trustworthiness ($n = 35$)	—.01	—.46**	—.23	—.23	—.23	.36*
Forgiveness ($n = 20$)	—.01	—.13	—.07	—.02	.19	.13
Repentance ($n = 23$)	.10	.28	.20	—.13	.23	.09
Trust ($n = 35$)	.22	—.15	.07	—.18	.04	.36*

* $p < .05$.
** $p < .01$.

combined sex groups, and if one considers only the self and other trust variables, three out of six correlations were significant.

Trust of others as a general disposition was significantly correlated with "trust" as measured by the patterns of strategy choices in the PDG ($r = .30$); this relationship held for the female *S*s ($r = .49$) but not for the males. Self-trust was negatively correlated with "trustworthiness" for the sex groups combined ($r = —.41$) and for the males ($r = —.46$). Although these findings relate to the major issue, the relationships between the other PDG vari-

of his general disposition to be TW, F, R, or T only if at least five occasions have occurred for him to manifest such a disposition. If a CC never occurs, a *S* cannot show whether he has been trustworthy by responding to such a first trial occurrence with a second trial C or D.

ables and the Trust Test measures were also analyzed. For the combined groups, significant negative relationships occurred between self-trust and cooperative proportion ($r = -.26$) and total trust—other trust plus self-trust —($r = -.28$). Only for females did the rebel scale negatively correlate with repentance ($r = -.54$). For both groups combined ($r = -.31$) and for females ($r = -.42$) a negative relationship occurred between the equanimity subscale and "trustworthiness." A significant positive relationship obtained between the locus of trust (other trust minus self-trust plus 10) and the groups combined ($r = .28$). There was also a positive relationship between locus of trust and the PDG trust measure ($r = .40$). The latter relationship held for the male ($r = .36$) and female ($r = .49$) groups separately. Only within the female group did locus of trust significantly relate to "trustworthiness."

D. Discussion

Although the results regarding the differences in the stochastic variable of "trustworthiness" as a function of the different "dummy" manipulated strategies cannot be interpreted unequivocally, it seems clear that a contingent cooperative schedule of reinforcement, where the *S* was rewarded for cooperating but punished for defecting, produced greater "trustworthiness" than do other schedules of reinforcement. Apparently, rewarding cooperative responses was more efficient in producing "trustworthiness" than in punishing defection responses, since, with the exception of group 2, the degree of "trustworthiness" can be ordered almost directly with the percent of reinforced trials. At least regarding this PDG variable, the condition differences would serve to attenuate the intercorrelations with the other measure, thereby increasing the possibility of rejecting the hypothesis when it could be true. The intercorrelations with the "trustworthiness" variable, to be described later, are therefore conservative.

The lack of relationship between the Test of Values and the Trust Scales may be explainable by the fact that the Allport-Vernon Test of Values supposedly measures molar aspects of personality and the Trust Test was designed to assess the more restricted dispositions. Analysis of the stochastic variables and the Trust Scales indicates that a person who responds in the PDG in a noncooperative manner is likely to have high self-trust. After a trial in which cooperation with the other occurred, the person characterized by high self-trust does not conform to the implied promise to cooperate again. This finding may be related to self-perceptions of ability to exploit another person and implied inner directedness.

On the other hand, a person characterized by trust of others is more likely

to cooperate again after a trial in which he had been exploited by the other. Such a reaction may be interpreted as based on trust that the other person would cooperate on the succeeding trial. It seems reasonable to conclude that the strategies utilized in the PDG may be partially a function of whether a person has trust in self or trust in others. Further, the directions of the correlations between the Trust Test variables and the PDG variables of "trust" and "trustworthiness" appear to support the intuitive content of the stochastic variables. Analysis of the locus of trust variables which when higher indicates a locus loaded on other trust also supports the interpretation that trust in others is related to greater cooperation, trusting, and trustworthy behavior in the PDG. It was also found that people who evidence an attitude that others should be treated as equals are characterized by trustworthy behavior.

Only for the males did the self-trust variable emerge strongly enough to correlate with any of the PDG variables, and only for the females did the other trust variable intercorrelate. Although one must guard against typing males as self-trusters and females as other trusters, it does seem clear that males who are self-trusters are less trustworthy and females who are other trusters are more trusting in the PDG. The females evidencing trust in others were also characterized as being repentant after having exploited another person, while females scoring high on rebelliousness were not. Females who were trustworthy were also expressive of attitudes of equanimity.

E. Summary

In an attempt to support an intuitive interpretation of *S*s' disposition derived from a stochastic analysis of responses in a Prisoner's Dilemma Game, 30 females and 40 males played against seven programmed strategies. No differences occurred for the variables of forgiveness, repentance, and trust; however, a trustworthiness variable showed group differences. The intercorrelations of the stochastic variables and a Trust Test provided some support for the ascribed dispositions, but further suggest that trust in self and trust in another lead to different strategies. The intercorrelations also revealed sex differences.

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WORD MEANINGS AND SELF-DESCRIPTIONS*

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A. INTRODUCTION AND PROBLEM

Objections have been raised to the use of self-ratings as measures of self-concepts. Ambiguity may be said to result if self-ratings are used to make inferences about self-concepts, since there is doubt as to whether subjects are differing primarily in the meanings they attribute to the words they are rating or whether the differences are a reflection of differences in self-concepts (2).

Loehlin (3) compared the consistency with which college students assigned meanings to trait descriptive adjectives and the consistency with which they described themselves using the same traits, and found them both to be of the same order of magnitude. He (4) repeated his previous study, using the same adjectives by extending them to pairs and triads of synonyms. Self-ratings using such extended adjectives were insufficient to infer self-concepts because individual differences in self-ratings were not significantly different from those for the meanings of the concepts used. Thus the use of multiple synonyms to anchor the meanings of the concepts had little effect on the previous results. It is quite conceivable, however, that, although multiple synonyms may not decrease variability in concept meanings, a more extensive defining procedure may accomplish this end.

The purpose of the present study was to investigate a method whereby agreement in concept meanings across subjects may be increased. Such a method would increase the possibilities of inferring self-concept differences from self-rating differences particularly if individual differences in self-ratings are considerable.

B. METHOD

1. *The Traits*

The traits used were derived from the 16 PF (1). Items of the 16 PF were grouped into clusters according to the factors they measured. These were then written in the form of a profile of some hypothetical person. The subjects (240 introductory psychology students) were asked to read each profile and

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choose from a list of traits the one they thought most described the personality of the profile person.

There was a large degree of agreement as to the traits chosen across subjects. Only those traits that received 60 percent or better of the 240 possible choices were selected. Test-retest reliabilities and percentage choice are given in Table 1 for the selected traits.

TABLE 1
PERCENTAGE CHOICE AND TEST-RETEST RELIABILITIES FOR THE SELECTED TRAITS*

Trait	Percent	Reliability
unstable	81	.88
tolerant	73	.69
realistic	69	.68
group dependent	66	.79
self-confident	62	.62
conservative	61	.65

* Reliabilities taken from a sample of 50.

2. *Concept and Self-Measures*

The Semantic Differential (5) was used to measure the distances in semantic space based on similarities in connotative meaning. Each of the six traits and the concept *self* was rated on 10 seven-point graphic rating scales—three for each of the activity and potency factors and four for the evaluative factor. By computing 15 distances from concept to concept and six distances from concept to self for each subject, 21 D scores were derived.

3. *Procedure*

From the original class a random sample of 50 students was chosen with assignment at random to control or experimental treatment (25 students in each).

The Semantic Differential was administered to the control group. When they had completed the form, they were informed of the purpose of the study and thanked for their participation.

Under the experimental condition each of the 25 subjects was given the corresponding profile descriptions for each of the six traits and was asked to read them through carefully. They were then given the Semantic Differential and requested to refer to each of the profiles while rating each concept.

C. RESULTS AND DISCUSSION

Kendall's coefficient of concordance (W) was used to test the consistency in concept meanings and self-descriptions across subjects for both the experimental and the control groups. The computation of W was therefore based on

the rankings of 15 distances from concept to concept, for concept meanings; and on six distances from concept to self, for self-descriptions.

The resulting *W*s show a marked difference in the consistency of concept to concept distances for the two groups. It appears that the experimental group were applying essentially similar criteria to the concepts they were rating, for the agreement is relatively high ($W = .69$). A significant difference well beyond the .01 level was found between the *W*s for the two groups. The *W* of .12 for the control group is significantly higher than that expected by chance, however some agreement in meanings is to be expected from a homogeneous student sample.

When concepts to self-distances are examined, it can be seen that there is very little difference between the two groups. Although there is significant agreement for both groups (*W*s were .38 and .33 for the experimental and control groups, respectively), variability of meaning for the control group may explain most of the variability in self-rating. High agreement in concept meaning for the experimental group precludes a large proportion of the variability in self-ratings from being attributable to differences in the meanings of the traits. The provision of anchoring concept definitions thus confers an advantage, especially if differences in self-ratings remain relatively high, as in the present study. With this procedure, the researcher may take differences in self-ratings as more adequately reflecting differences in self-concepts.

Adjectives used in any investigation of self-measures deserve careful attention. Not only may people vary as to the meanings they ascribe to concepts, but changes can, and often do, occur in meanings as soon as a person is required to attribute the traits to himself. However research is needed to determine the generality of the present finding. Variability in concept meanings may remain even after extensive defining procedures when subjects are heterogeneous with respect to such variables as education, age, intelligence, attitudes, values, and so on. The investigator must take great care to define adequately the concepts he requires his subjects to use; and it appears from Loehlin's (4) study that multiple synonyms do not increase the anchoring of concepts and may often decrease agreement. Behavioral definitions, such as those used in this study, may provide the basis for better interpretations of self-ratings, but the degree of agreement in concept meanings for the traits used should be investigated first before inferences are made.

D. Summary

Two groups of subjects were given a form of the Semantic Differential on which they rated six traits and *self*. The experimental group consulted behav-

ioral definitions derived from the 16 PF while rating the traits. The resulting agreement in concept meanings was larger than for the control group. The ambiguity of interpreting self-ratings as reflections of self-concepts, without adequate agreement in concept meanings, has been discussed in the light of such an anchoring procedure.

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THE EFFECT OF EFFORT AND EXPECTATION ON PERCEPTUAL CONTRAST AND DISSONANCE REDUCTION*

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A. INTRODUCTION

Abundant anecdotal evidence, buttressed by psychophysical and social psychological research (4, 6, 7), attests to the fact that human judgments of the magnitude of stimuli generally reflect the influence of past experience with comparable stimuli. For example, a person in the northern hemisphere accustomed to winter temperatures averaging around 10 degrees will usually judge a January day of 50 degrees to be very warm, whereas one accustomed to 50-degree temperatures will not. The tendency of magnitude estimates of present stimuli to be displaced away from previous stimuli (or expectation) has been called a contrast effect.

The discrepancy between an expectation and a subsequent stimulus clearly falls within a class of phenomena called cognitive dissonance (3). According to dissonance theory, people try to resolve such discrepancies by changing various cognitions. Experiments based on dissonance theory have indicated that organisms may reduce dissonance by bringing disconfirming stimuli into line with already established behavior or expectations (1, 5). Yet it seems that an organism which continually distorted its perception of its environment in order to preserve its expectations would have difficulty surviving; for example, it might not learn from experience. Clearly expectations must be and often are revised or given up entirely.

To reduce the discrepancy between expectation and stimulus, then, an individual may either revise his expectation to align it with the stimulus, or distort his perception of the stimulus to bring it into line with his original expectation. If an individual accustomed to 10-degree weather in January denied or revised his expectation, he might experience no further dissonance by describing a January day of 50 as very warm. Such a description would appear as a judgmental contrast effect, reflecting the difference between the past stimulus series and the actual warmth of the present day. Alternatively, if the individual

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defended his expectation by claiming that the 50-degree day was not really warm, that description would appear as a smaller judgmental contrast. The magnitude of the judgmental contrast effect, therefore, depends upon whether or not the individual revised his cognition about his original expectation.

Analysis of an experiment by Aronson and Mills (1) suggests that expectations are less likely to be revised (*a*) when the expectations are strong and salient, and (*b*) when altering expectations will then arouse new dissonance. In that experiment, the *perceptual* contrast between expected attractiveness of the discussion and experienced attractiveness was not reflected in the final judgment of the severely initiated group. We believe that the absence of a strong *judgmental* (i.e., overtly expressed) contrast effect among these subjects was due to their expectations which were too strong and salient to be denied or revised. The girls probably developed salient high expectations in order to justify enduring the stressful initiation. In addition, to deny the expectation in retrospect would have introduced new dissonance between effort (severity of initiation) and expectation. This analysis implies that disconfirmation of expectation in the presence of effort or other behavioral commitment produces dissonance-reducing responses in which the expectation is defended. There is, however, some evidence (5, chap. 7) that such responses will occur in the absence of effort or commitment. Apparently the effects of effort when expectation is held constant have not been tested. Since effort usually influences expectation (8), such a test is difficult.

Although it may be difficult to do so, some individuals may attempt to deny or revise expectations in spite of the amount of effort or commitment involved. Such denial or revision would also require changing cognitions about the amount of effort, in order to maintain consonance between effort and the revised expectation. Cognitions could be changed either by denying the unpleasantness of the effort or by finding intrinsic rewards in the effort itself. To predict the magnitude of judgmental contrast, then, it is necessary to make it difficult for subjects to revise expectation and cognitions about the amount of effort and unpleasantness endured, and to measure their judgments concerning not only the outcome of the effort (the reward) but also the effort itself. The laboratory experiment described below was designed to indicate whether the magnitude of a judgmental contrast effect could be manipulated by varying the subjects' strength of, and commitment to, an expectation which is subsequently disconfirmed. High and low expectations were each created under conditions of high and low effort expenditure. The following hypotheses were evaluated:

1. When little effort is expended and perceptual contrast is large, judg-

mental contrast will also be large. Specifically, when subjects expend little effort to obtain a product, those who receive a product less valuable than they expected will rate that product less favorably than will those who expected to receive and do receive the same product.

2. As effort expended increases (and perceptual contrast remains large), judgmental contrast will decrease.

3. When subjects expend considerable effort, those who receive a product less valuable than they expected (large perceptual contrast) will evaluate the effort itself more favorably than will subjects who expected to receive and do receive the same product.

B. Method

To test the hypotheses, it was necessary to vary both effort and expectation. Each of these independent variables appeared at two levels in a two-by-two factorial design.

1. *Subjects*

The subjects were 107 college juniors and seniors in the School of Business Administration at the University of Minnesota. Nineteen were suspicious of the procedure; data obtained from them were excluded from the analysis, as a result of which the direction or significance of the differences was not affected.

2. *Research Procedures and Materials*

Expectation was manipulated by the use of two catalogs which contained advertisements for ballpoint pens of the type usually purchased by college students. The advertisements, which included descriptions and prices of the pens, were obtained from stationery stores on and adjacent to the university campus. The high expectation catalog contained 31 products whose median listed price was about $1.95. Twenty-five products ranged from about $1.00 to $3.00 in price; six were priced from 29¢ to 49¢. The 31 products shown in the low expectation catalog were priced between 29¢ and 59¢; their average price was about 39¢. All subjects received the same 39¢ pen, ostensibly chosen by lot from samples provided by the manufacturers whose products were shown in the catalog. Thus, the reasonable expectation of a student who saw the high expectation catalog was a $1.95 writing instrument; of a student who used the low expectation catalog, a 39¢ pen.

Effort was manipulated by a simulated shopping task. The task required low effort subjects (seated one at a time in booths in a classroom) to look

through one of the catalogs as if shopping, and to write down one product characteristic which impressed them for half of the items shown. This minimum effort took about 15 minutes. High effort subjects (seated in the same room, but working under a glaring light) worked about an hour. They were asked to comb the catalog carefully, and to record five different product characteristics for each of the 31 items. The purpose of their task was to force them to invest considerable shopping effort under unpleasant conditions.

After each subject had finished recording information from the catalog, the experimenter asked him to draw lots to determine which product from the catalog he would receive. In fact, all subjects received the same 39¢ ballpoint pen. The pen was similar, but not identical, to most of the 39¢ items in each catalog.

The experimenter gave the subject his pen and collected the experimental materials while asking the subject to remain "just a few more minutes to help us out." The experimenter then presented the postexperimental questionnaire and explained how to complete it.

The dependent measure was a questionnaire on which subjects evaluated both the 39¢ pen they received and the simulated shopping experience. They indicated their evaluations by placing an "X" along each of several 100 millimeter lines of the form shown in Figure 1. Questionnaires were scored by measuring the distance in millimeters from the zero end of the line to the point where the "X" crossed the line.

I think this product is:

Extremely Desirable	Fairly Desirable	Not too Desirable	Not at all Desirable

(100) ———————————————————— (0)

FIGURE 1
EVALUATION QUESTIONNAIRE

Subjects evaluated the pen on three scales: (*a*) desirability, (*b*) usefulness, and (*c*) an explicit comparison with other products in the catalog. Individual scores on each of these were summed and divided by three to form a product evaluation index for each subject.

Subjects evaluated the catalog shopping task on five scales. These included the degree of pleasantness, fatigue, frustration, interest, ease, and intrinsic reward of the task. A combined unweighted index of these scales was calculated for each subject, with a higher score indicating a more favorable evaluation of the task.

C. Results

1. *Effect of Manipulation*

The manipulation of effort was apparently effective (see Table 1). It was most appropriately checked within the low expectation condition, where dissonance processes were not expected to modify the subjects' judgment of the amount of effort. Within the low expectation conditions, subjects exposed

TABLE 1
Treatment Means
(Maximum favorable rating = 100.0)

Effort	Expectation Low	Expectation High
	Product Evaluation Index	
Low	53.9 ($n = 23$)	41.9 ($n = 18$)
High	57.0 ($n = 24$)	48.3 ($n = 23$)
	Task Evaluation Index	
Low	66.4	63.9
High	45.8	53.3

to the *low* effort treatment rated the task 66.4 on a scale where 100.0 reflected the most favorable (least aversive) evaluation possible. Subjects exposed to the *high* effort treatment rated the task 45.8 on the same scale. This difference is significant at the .0005 level (t test).[1] Another indication of the effectiveness of the effort manipulation was the time taken by subjects to complete the task. Although they were given no time limit, those in the low effort treatment (both expectation conditions) completed the task in an average time of 15 minutes, while subjects in the high effort treatment (both expectation conditions) spent an average of 60 minutes on the task.

The manipulation of expectation also appeared to be effective. Results of a series of pilot tests showed that subjects who used the high expectation catalog did, in fact, expect a product worth up to $2.00; whereas subjects who saw the low expectation catalog expected to receive a product in the 29¢ to 49¢ range. At the end of the questionnaire, subjects were asked to compare the product they received with what they had expected while going through the catalog, on three dimensions: value, usefulness, and desirability. Subjects in the low expectation treatment reported that the product they received was about as valuable, useful, and desirable as they had expected. On the other hand, high-

[1] All p values refer to one-tail t tests.

expectation subjects reported that the product they received was *less* valuable, useful, and desirable than they had expected. Differences between high and low expectation subjects along all three dimensions were significant well beyond the .01 level. In addition, many subjects volunteered, in postexperimental interviews, that they had formed expectations consistent with the mean value of the products presented in each catalog.

2. *Evaluation of the Product*

Table 1 shows that subjects in the high expectation treatments rated the product less favorably than subjects in the low expectation treatments. This result is obtained not only with the three-scale index, but also with just the "Desirability" and "Usefulness" scales, and with either the "Desirability" or "Comparison-to-Catalog" scales used alone. Subjects who expended high effort evaluated the product *more* favorably than did those in the low effort treatments. The judgmental contrast effect appears clearly in the difference between expectation conditions within the low effort treatment (low expectation-high expectation, $p < .025$).

The *lowest* mean rating of the product appeared in the low effort, high expectation cell; the *highest*, in the high effort, low expectation cell. The interaction between effort and expectation was in the predicted direction, but not statistically significant ($p = .12$).

3. *Evaluation of the Task*

When effort was objectively low, expectation had no effect on subjects' evaluation of the task (see Table 1). When effort was high, however, the task was rated more enjoyable by high expectation (high dissonance) than by low expectation subjects ($p < .01$). The interaction effect was significant beyond the .001 level.

Although the collection of products in the high expectation catalog was more varied than in the low expectation catalog, high expectation subjects rated the task as no more interesting and somewhat more difficult than did subjects exposed to the low expectation catalog. It appears that the content of the catalogs themselves could not account for the differences observed in overall rating of the task.

D. Discussion

The bulk of the data are consistent with the following interpretation: if dissonance was aroused in a substantial number of subjects receiving the high expectation treatment, it is clear that inflating the perceived value of the pen

was not the preferred means of dissonance reduction, even though such inflation did occur slightly more often among high effort than low effort subjects. It is plausible that dissonance was reduced by revising the expectation of a high value pen. The indirect evidence for this interpretation is that high expectation-high effort subjects apparently denied that they had found the effort unpleasant.

It was expected that the expenditure of high effort would strengthen the high expectations in the high effort-high expectation condition (2). The prediction, therefore, was that subjects in this condition would be likely to "distort" the value of their pen to bring it into line with a fairly firm expectation. Having theoretically more difficulty in reducing dissonance by revising expectations, these subjects should have reduced dissonance by rating their gift higher than those who expended little effort in reading the same catalog. The product rating index did in fact show a difference in the predicted direction ($p < .10$) between those two cells, but the four-cell interaction was not statistically significant. Perhaps, in retrospect, it is not surprising that relatively few subjects with cognitive dissonance succeeded in convincing themselves that a 39¢ ballpoint pen was really a very desirable gift. An object so mundane may be difficult to overrate, especially if the subject is a university student who undoubtedly already owns one or two comparable (or superior) pens.

Even though the expenditure of high effort may have made high expectations difficult to revise, some subjects may have attempted to do so, in order to reduce dissonance between expectation and reward. Revision of the expectation (after receipt of the pen) could be facilitated by denying that the task had been arduous. The data are consistent with this reasoning. High effort-high expectation subjects rated the task less unpleasant than did high effort-low expectation subjects ($p < .01$); and the four-cell interaction was statistically significant ($p < .001$). Low effort subjects, of course, had no need to revise their cognitions about effort because their effort was minimal anyway.

Low effort-high expectation subjects who received a cheap pen showed very little tendency to reduce dissonance by claiming that the pen was desirable. On the contrary, they rated the pen much less favorably than did subjects who had effortlessly read the catalog of cheap pens. This outcome is what is generally called a judgmental contrast effect. It is definitely not a means of reducing dissonance. If these high expectation subjects had continued to claim that they had expected an expensive pen, any tendency to derogate the pen received would *increase* dissonance. Instead, many of these subjects probably reduced their dissonance by revising their expectations following the relatively brief and effortless exposure to the high-expectation catalog.

E. Summary

Subjects performed a simulated shopping task in a 2 × 2 design under conditions of low or high effort and low or high expectation concerning the value of a gift to be received at the end of the session. All *S*s evaluated both their gift and the pleasantness of the task immediately after receiving a low-value ballpoint pen. High expectation *S*s rated the pen less desirable than did low expectation *S*s, especially when effort expended had been low. High expectation *S*s who had expended high effort apparently reduced their dissonance primarily by revising their expectations and by claiming that the task had not been effortful. The results indicate that dissonance is not always reduced by distorting the information which disconfirms an expectation.

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CHANGES IN SELF, IDEAL-SELF CORRELATIONS FROM AGES 8 THROUGH 18*

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A. Introduction

Psychoanalytic theory postulates the increasing importance of superego functioning with the termination of oedipal strivings and the commencement of the latency period. It is during this time that the introjected values of identification models make themselves manifest and the child begins to have intrinsic feelings of guilt or self-worth depending on how his behavior conforms to the introjected values that have become part of his superego processes (2, pp. 102-113).

It was theorized by the present writers that the self and ideal-self concepts that have become so frequently measured and discussed by the self-theorists (e.g., 4) may well be a reflection of the compatibility of id, ego, and superego processes of the individual. Further, it was thought that with the increasing importance of the superego processes during the latency period, there would be an increasing discrepancy between self and ideal-self ratings as the individual increased in age from the onset of the latency period to its termination at puberty. This does not imply that ideal-self is a direct reflection of superego processes and the real-self a reflection of ego functioning, but rather that there is a dynamic relationship between the superego, the ego, and the id. When these processes are in harmony with each other, there will be a higher congruence between self and ideal-self. Conversely, a low self and ideal-self would reflect lack of harmony in the superego, ego, and id functioning. Thus, as the superego becomes more important during the latency period, there is an increased likelihood of guilt feelings and a greater discrepancy between the self and ideal-self evaluation.

Therefore, beginning at about age 5, the discrepancy would begin to increase and would continue to do so until the termination of the latency period (about age 12 or 13). At this time a leveling would occur as the identification process becomes more or less complete.

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On the basis of these conceptualizations, the present writers hypothesized that from ages 8 through 12, the congruence of the self-concept and the ideal-self concept would decrease. Because of problems of reading and understanding language, it was decided to exclude younger subjects from the study. Secondly, it was predicted that the congruence of the self and ideal-self would not differ significantly for ages 13 through 18. While psychoanalytic theory does not provide a theoretical basis for predicting a difference between males and females, there are some indications in the literature that such a difference may occur (e.g., 3) ; consequently, it was decided to compare the data from the males with that from the females to see if any differences occurred.

B. Method

The self and ideal-self concepts were measured by means of a semantic differential instrument utilizing 20 pairs of bipolar adjectives with a nine-point scale between each pair. Each subject was asked first to describe "the actual you—how you actually are" on these 20 pairs of adjectives. After completing the self-rating, each subject was asked to describe his ideal-self, "how you would like to be—how you wish you were." An example of one such bipolar pair of adjectives is

sad ——:——:——:——:——:——:——:——:—— happy.[2]

This same instrument was used for all subjects from ages 8 through 18. A pilot study indicated that the adjectives could be understood by the younger children and that the older subjects did not feel that the adjectives were childish. Besides looking at the list of bipolar adjectives, the younger children (ages 8 and 9) were presented each pair of adjectives orally by the experimenters. It took an average of 10 minutes for the high-school subjects and up to 30 minutes for some of the younger children to do their ratings.

1. *Subjects*

A total of 701 subjects were drawn from public schools in Utah County, with the data being collected within a three-week period. A breakdown of the sample is indicated in Table 1.

2. *Treatment of the Data*

A correlation coefficient which was the measure of self ideal-self congruence was calculated for each individual. To facilitate scoring and computation of the correlations, the intervals between each pair of adjectives were assigned consecutive digits from one to nine, left to right. A close congruence between the subject's self-rating and ideal-self rating would result in a high correla-

[2] A copy of the bipolar adjectives can be obtained by writing to the authors.

tion. Disparate ratings between the self and ideal-self would yield a lower correlation. A Fisher $\overline{Z}_r$ transformation of these scores was made, and a mean $\overline{Z}_r$ was computed for each age group.

In testing the first hypothesis, a multiple test of the homogeneity of mean correlations was used to determine the significance of $\overline{Z}_r$'s for age groups 8 through 12 (1, p. 83). With the same method, the second hypothesis was

TABLE 1

FISHER $\overline{Z}_r$'S AND *SD*S BY AGE FOR MALES, FEMALES, AND COMBINED MALES AND FEMALES AND χ^2 VALUES FOR THE MULTIPLE COMPARISONS OF $\overline{Z}_r$'S

Age to nearest birthday	Males			Females			Combined		
	N	$\overline{Z}_r$	*SD*	*N*	$\overline{Z}_r$	*SD*	*N*	$\overline{Z}_r$	*SD*
8	43	2.8157	.9865	34	1.1594	1.0558	77	2.0947	1.0167
9	38	1.2646	1.3557	31	1.0578	1.1260	69	1.2223	1.2491
10	33	1.4472	1.4577	35	1.0320	.6439	68	1.2303	1.0326
11	34	1.1080	1.0582	31	1.2703	1.0732	65	1.1842	1.0652
12	36	.8323	.4569	33	.8467	.5559	69	.8393	.5049
	($\chi^2 = 90.30$, $p < .001$)			($\chi^2 = 2.90$, $p > .50$)			($\chi^2 = 61.77$, $p < .001$)		
13	28	1.0800	.5189	15	1.1233	.3721	43	1.0951	.4677
14	30	.9200	.4229	28	.9643	.5094	58	.9418	.4654
15	26	.9752	.5434	23	1.1005	.5121	49	1.0270	.5305
16	28	1.0379	.4209	22	1.1500	.4250	50	1.0859	.4226
17	24	1.1005	.5529	26	1.0731	.4061	50	1.0900	.4951
18	57	1.0502	.4589	46	1.1087	.5467	103	1.0755	.4967
	($\chi^2 = .59$, $p > .90$)			($\chi^2 = .51$, $p > .90$)			($\chi^2 = .95$, $p > .80$)		
Totals	377			324			701		

tested for age groups 13 through 18. Finally critical ratios were computed to determine the significance of the difference between the males and females in the younger age groups (8 through 12) and between the males and females in the older age groups (13 through 18).

C. RESULTS

The first hypothesis which predicted a decrease in self ideal-self congruence over ages 8 through 12 was supported with $\chi^2 = 61.77$ and $p < .001$. The mean $\overline{Z}_r$'s and standard deviations are reported in Table 1.

Since the statistical test used in connection with this hypothesis is an index only of the differences between $\overline{Z}_r$ scores without regard for ordinal relationships, acceptance of this first hypothesis rests also on the relative magnitude of the $\overline{Z}_r$'s. To conform to this hypothesis these scores should be highest at age 8 and decrease in value through age 12. Inspection of Table 1 reveals that this order is fairly consistent as predicted. There is a slight reversal at

ages 9 and 10, but it is felt that the overall ordering justifies acceptance of this hypothesis. To analyze these data further, this age range was divided into male and female groups and each age group was tested for significance separately. The differences between the male groups proved highly significant ($\chi^2 = 90.30$ and $p < .001$). Inspection of the male $\overline{Z}_r$ scores as indicated in Table 1 shows that the ranking of the $\overline{Z}_r$'s is consistent with this hypothesis. The difference between female groups, however, was not statistically significant ($\chi^2 = 2.90$ and $.70 > p > .50$). Furthermore, inspection of the ordinal relationships of the $\overline{Z}_r$'s for the female groups indicates that there was no consistent trend (see Table 1).

TABLE 2

COMPARISONS OF $\overline{Z}_r$'S FOR AGE GROUPS 8 THROUGH 12 AND 13 THROUGH 18

Age group	Males N	Males $\overline{Z}_r$	Females N	Females $\overline{Z}_r$	CR	p
8-12	184	1.546307	164	1.071051	4.39	<.001
13-18	193	1.028635	160	1.083570	.51	>.60
CR		4.98		.11		
p		<.001		>.90		

The second hypothesis stated that self ideal-self congruence would not differ significantly from ages 13 through 18. This hypothesis was tested in the same manner as the first. The hypothesis was substantiated ($\chi^2 = .95$ and $.90 > p > .80$), thus supporting the prediction that self ideal-self congruence would be constant across this age range. Inspection of the $\overline{Z}_r$'s as shown in Table 1 indicates a uniform magnitude in this age range.

Again the male and female groups were tested separately. It was found that the age group $\overline{Z}_r$'s for males and females were not significantly different with $\chi^2 = .59$ for males and .51 for females and $.95 > p > .90$ in both cases. These $\overline{Z}_r$'s are found in Table 1.

Inspection of Table 2 shows that for the younger age group the males were significantly more congruent than the females ($CR = 4.39$, $p < .001$). In contrast to this, there was no significant difference between the males and the females in the older age group ($CR = .51$, $p > .60$). Finally, it should be noted that the younger males were significantly more congruent than the older males ($CR = 4.98$, $p < .001$), but there was no difference in the congruence between the younger and older females ($CR = .11$, $p > .90$).

D. DISCUSSION

Of the hypotheses proposed in this study, probably the most important in respect to the Freudian theory of identification is the first. This predicted

that from ages 8 through 12 there would be a decrease in self ideal-self congruence. It was found that, by the criteria of both statistical significance and ordinal relationships of the $\overline{Z}_r$ scores for this age group, the hypothesis was tenable. However, by separately analyzing the male and female samples, this hypothesis was supported only in the case of the males. It is felt that the less complicated identification process of the male may account for these results and also for the finding that the males tended to be more congruent than the females.

The second hypothesis in this study concerned the data drawn from subjects 13 through 18 years of age. This hypothesis was verified with the finding that all $\overline{Z}_r$'s are of the same magnitude across this age range. This was true of male and female subjects separately and for all subjects combined, thus supporting the contention that with the onset of puberty the self ideal-self congruence stabilizes.

E. Summary

On the basis of psychoanalytic theory of identification it was predicted that self ideal-self congruence would (*a*) decrease from ages 8 through 12 and (*b*) stabilize from ages 13 through 18. Correlations between self and ideal-self ratings on a 20-item semantic differential scale served as the measure of self ideal-self congruence. On the basis of the responses of 391 subjects, the first hypothesis was supported in the case of males but not of females. The second hypothesis was judged to be tenable for both males and females, with the use of a sample of 310 subjects. It was suggested that the observed difference between the sexes relative to Hypothesis 1 reflected the difference in the identification process of males and females.

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THE PERCEPTION OF POLICY POSITIONS OF PRESIDENTIAL CANDIDATES*

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A. INTRODUCTION

A newly developing body of research has demonstrated that a person's own position on an issue is an important frame of reference, or anchor, used in interpreting positions taken by others. Two related phenomena have emerged: a common tendency to judge others who are relatively close to one's own position on an issue as closer than in fact they are (assimilation); and a tendency to believe that persons holding positions quite different from one's own position are more different from oneself than in fact they are (contrast). It is reasonable to expect assimilation and contrast effects in interpretations and decisions about a range of socially significant stimuli. With rare exception, however, the research from which these principles have been derived has been limited to judgments of relatively abstract attitude scale statements (3), or in some instances to judgments of single, relatively short communications (1, 2).

One recent study observed both assimilation and contrast effects in judgments of positions presented on issues relating to the 1960 Presidential campaign (4). Tape-recorded communications favoring Democratic or Republican positions on five issues—farm policy, labor, civil rights, foreign policy, and peace—were presented to different groups of university students. Judgments of the positions presented by speakers taking extreme positions showed little distortion or difference in interpretation. Clear assimilation, or contrast effects occurred as expected, however, in judgments of more moderate communications which were nearer, or farther, from the listener's own position.

The present study was designed to test an extension of these principles to the content of specific issue positions of active Presidential candidates—Johnson and Goldwater. Specifically, we hypothesized that (*a*) subjects would generally agree as to the relative policy positions of President Johnson and Senator Goldwater prior to the 1964 election, but (*b*) contrast and assimilation effects would also emerge in judgments of these positions. Following the

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implications of earlier research, we also expected (*c*) that, in extreme partisans for the candidates, contrast effects would predominate over assimilation effects.

B. Method

1. *Subjects*

During the week preceding the 1964 Presidential election, 180 undergraduate college students completed the study questionnaire. The 51 subjects clearly supporting President Johnson were compared with the 36 subjects clearly supporting Senator Goldwater. Each subject rated each candidate on a six-point scale. Support for Johnson (or Goldwater) was defined by the subject's checking either "very strongly approve" or "strongly approve President Johnson (or Senator Goldwater) and his policies," together with checking "strongly disapprove of Senator Goldwater (or President Johnson) and his policies."

2. *Judgments of Policy Positions*

Subjects judged the positions of President Johnson and Senator Goldwater on each of 26 issues, using a seven-point rating scale. Four points on each scale were defined by statements. Twenty-two issues were considered, *a priori,* by the investigators, as directly or indirectly involved in the campaign, or as generally accepted bases of policy differences between the candidates. These included both foreign issues (aid to satellite Communist countries, atomic testing, programs with the USSR, the Peace Corps, the United Nations, military action against Cuba, cultural exchange programs, and Presidential control of nuclear weapons), and domestic issues (support for the elderly, the John Birch Society, action to halt riots, McCarthyism, public works projects, Social Security, authority of the Supreme Court, the 1964 Civil Rights Bill, federal aid to education, restrictions on labor unions, public power, farm-price supports, and medicare). Four further issues which were not as clearly involved in the campaign, or where the policy positions were expected to be more confused, were also rated but analyzed separately. Recognizing the U.S. as a Christian nation and increasing or decreasing the military draft were not specifically discussed by both candidates; and the issues of increased defense spending and reduction in taxes were obviously interwoven and complex, and the precise positions of the candidates here were not expected to be clear, or at least clearly understood by voters.

TABLE 1
MEAN JUDGMENTS OF POLICY POSITIONS OF GOLDWATER AND JOHNSON BY GOLDWATER AND JOHNSON SUPPORTERS

Issue*	Judgments of Goldwater			Judgments of Johnson		
	By Goldwater supporters	By Johnson supporters	p**	By Goldwater supporters	By Johnson supporters	p**
1. Would probably increase the Peace Corps over the years.	4.32	2.55	.01	4.93	5.25	.05
2. Favors stopping almost all government aid to the elderly with limited income.	3.55	5.09	.01	1.77	2.32	ns
3. Would considerably increase the cultural exchange programs.	4.71	3.02	.001	4.40	5.00	.10
4. Would end all aid to satellite Communist countries.	6.16	6.40	ns	2.89	3.96	.001
5. Strongly against resuming atomic testing in the atmosphere.	3.87	2.47	.02	5.76	5.36	ns
6. Strongly against basic views of the John Birch Society.	4.27	2.89	.01	5.37	6.20	ns
7. Strongly against working out programs with the USSR and other nations.	3.37	5.13	.001	2.23	1.59	ns
8. Strongly against intervening to halt riots by Negroes.	2.17	2.82	ns	4.13	3.13	.05
9. Strongly disapproves of methods used by Senator Joe McCarthy.	4.93	3.31	.01	5.00	5.26	ns
10. Strongly against public works projects in high unemployment areas.	4.00	4.82	ns	1.97	1.77	ns

TABLE 1 (*continued*)

Issue*	Judgments of Goldwater: By Goldwater supporters	Judgments of Goldwater: By Johnson supporters	p**	Judgments of Johnson: By Goldwater supporters	Judgments of Johnson: By Johnson supporters	p**
11. Strongly against broadening and strengthening the social security program.	3.80	5.14	.02	2.04	1.94	ns
12. Strongly against withdrawal from the United Nations.	3.79	2.63	.01	6.42	6.78	ns
13. Strongly disapproves of reducing the authority of the Supreme Court.	3.62	2.91	ns	5.13	5.77	.01
14. Not at all willing to use nuclear weapons, if necessary, to win in Vietnam.	2.87	1.55	.001	6.23	5.30	.01
15. Would be strongly against enforcing the Civil Rights Bill of 1964.	3.03	5.39	.001	2.27	1.60	.10
16. Strongly disapproves of Federal aid to education.	4.50	5.26	ns	1.73	1.98	ns
17. Strongly approves of fewer restrictions on labor unions.	2.46	2.74	ns	4.67	3.74	.001
18. Strongly against direct military action by the U.S. to remove Communism in Cuba.	2.17	1.81	ns	6.21	5.06	.001
19. Strongly against almost all public power projects to be ultimately turned over to private enterprise.	2.62	3.25	ns	5.73	5.04	.01
20. Strongly disapproves of increasing farm-price supports.	5.21	4.87	.10	2.54	3.40	.05

TABLE 1 (*continued*)

Issue*	Judgments of Goldwater: By Goldwater supporters	Judgments of Goldwater: By Johnson supporters	p**	Judgments of Johnson: By Goldwater supporters	Judgments of Johnson: By Johnson supporters	p**
21. Strongly against retaining total control of nuclear weapons by the President.	4.63	3.38	.05	1.60	2.43	ns
22. Favors greatly reducing medical programs financed by the government.	5.50	5.52	ns	1.63	2.43	.05
23. Strongly disapproves of recognizing the U.S. as a Christian nation.	1.28	2.68	.01	2.90	3.13	ns
24. Would considerably decrease defense spending.	3.50	2.70	ns	3.43	3.45	.001
25. Strongly for reducing taxes.	5.77	4.35	.10	3.23	4.87	.01
26. Favors considerably decreasing the military draft.	5.14	4.24	.05	4.63	4.71	ns

* Statements for Position 7 on the seven-point rating scales.
** Based upon χ^2.

C. Results

1. *Similarities and Differences in Judgments of Candidate Positions*

Clearly, both Goldwater and Johnson supporters generally agreed as to the basic policy differences between the candidates, as expected. As shown in Table 1, both groups agreed on the relative positions on 21 of the 22 basic issues studied. On the one exception (Issue 3), both Goldwater and Johnson supporters judged their candidate as more favorably inclined toward cultural exchange programs than his opponent. Similarly, on the "noncampaign" issues, supporters of each candidate tended to judge their candidate as more inclined toward reducing defense spending, taxes, and the military draft than his opponent.

The greatest differences were seen on those issues most emphasized as distinguishing the candidates in the campaign. When comparison was made of Goldwater supporters' judgments of Goldwater with Johnson supporters' judgments of Johnson, differences greater than 2.00 on the seven-point scale —a sizable average difference—were found on 10 issues: issues 22, 12, 18, 16, 14, 19, 10, 4, 21, 13, in order of discrepancy.

Overall, Goldwater's position was judged more similarly by both groups of supporters than was Johnson's position. Differences in judgments by the two groups were greater for judgments of Johnson on 15 of the 22 basic issues, and 18 of the full 26 issues. Johnson's supporters, on the other hand, perceived more difference between the candidates (greater differences on 14 issues) than did Goldwater supporters (greater differences on eight issues).

The most striking instances of differences in the perception of candidates are those in which one candidate's supporters believed their man to be *for* a policy, and the other candidate's supporters believed him to be *against* the policy. Such differences in the perception of the direction of feeling occurred on nine of the 22 basic issues, a substantial number. For eight of these issues (Issues 1, 2, 3, 6, 7, 9, 11, 15), Johnson's supporters' judgments of Goldwater were opposite in direction from the other three sets of judgments. For example, where both groups of supporters agreed that Johnson favored strengthening Social Security, and Goldwater's supporters, as well, felt that Goldwater basically favored strengthening Social Security, the Johnson supporters viewed Goldwater as quite strongly against Social Security. Obviously, whether this is a result of the desire on the part of Johnson supporters to view Goldwater as against something generally accepted, or a distortion on the part of Goldwater supporters to see him as supporting the policy, for example, can-

not be determined by these data. The differences, however, were substantial, and clearly reflected very different conceptions of Senator Goldwater.

2. *Contrast and Assimilation Effects*

As hypothesized, in general, Goldwater was seen as more conservative by Johnson supporters than by his own supporters. Such *contrast* effects, significant at at least the .05 level, occurred on 11 issues (Issues 1, 2, 3, 5, 6, 7, 9, 11, 12, 14, 15). On six additional issues the differences were not significant (Issues 4, 10, 13, 16, 18, 22). It appears that the *contrast* effects emerged particularly on those issues most directly confronted in the campaign, or most central to the liberalism-conservatism dimension which was quite explicitly considered as differentiating the candidates.

On only one issue, interestingly, did a significant *assimilation* effect appear. Here Goldwater supporters tended to see Goldwater as less favorably disposed toward Presidential control over the use of nuclear weapons (Issue 21) as compared to Johnson supporters. This issue has questionable relevance to basic ideological positions of the candidates; and in this case, apparently, Goldwater's supporters paid greater attention to his statements on the issue than did the Johnson supporters. On four further issues (Issues 8, 17, 19, 20) the means in judgments of Goldwater suggested an *assimilation* effect, but the differences were not significant.

In judgments of Johnson, on the other hand, the *contrast* effect was significant on only eight issues (Issues 4, 8, 14, 17, 18, 19, 20, 22), and nonsignificant on four (Issues 2, 5, 16, 21). A significant *assimilation* effect emerged on two issues—support for the Peace Corps (Issue 1) and support for the Supreme Court (Issue 13). Judgments were in the direction of an *assimilation* effect, but not significant, on eight additional issues (Issues 3, 6, 7, 9, 10, 11, 12, 15).

It would appear from the data that some issues were of concern to some factions supporting one candidate, but were largely irrelevant to the supporters of the other candidate. This is certainly understandable in terms of the tactics of candidates in seeking support, by choosing, or emphasizing issues they may have felt were salient to particular groups. One clear illustration of this is the "issue" of regarding the U.S. as a Christian nation (Issue 23). In some campaigning Goldwater talked to this point; and in the data, apparently as a result, the Goldwater supporters perceived a clear, rather extreme position for Goldwater on the issue ($M = 1.28$), but the Johnson supporters'

judgments of Goldwater, and both groups' judgments of Johnson were far less extreme and highly variable.

One intriguing, unexpected finding was a significant difference in variability of judgments as to Johnson's position on defense spending (Issue 24). In this case Goldwater supporters came to quite differing conclusions concerning Johnson's position. Where the mean difference in judgments by Goldwater and Johnson supporters was only .02, the Goldwater supporters' judgments showed far greater variability ($\chi^2 = 29.80$; $p < .001$). This issue, of course, was regarded initially as complex, inasmuch as Johnson at the time presented a less aggressive defense policy than Goldwater, particularly for Vietnam—he suggested less defense spending but he was apparently seen by other Goldwater supporters as favoring greater governmental expenditures in general. The effect, apparently, was that some Goldwater supporters then followed one line of reasoning, and others followed the other line of reasoning—rather than for each person to balance off the two contradictory indicators.

D. Discussion

The findings from this study, based upon a limited sample of college students, obviously cannot be taken as a statement of representative opinion of the American public. They do, however, clearly identify some important phenomena that might be expected to occur quite generally in the perception of candidates.

As expected, the relative positions of the 1964 Presidential candidates were consistently perceived over a wide range of fairly independent issues. Both Goldwater supporters and Johnson supporters viewed Goldwater consistently more "conservative" on issues than Johnson. As also hypothesized, the perceiver's own position strongly influenced his interpretation of the candidate's position on issues. Overall, contrast effects were more common than assimilation effects, but the more striking fact was that on almost all issues one or the other did occur.

In view of the use of strong partisans of the candidates as subjects, the predominance of contrast over assimilation effects is understandable. On only two of the total of 26 issues—support for public works projects (Issue 10), and support of federal aid to education (Issue 16)—was no significant assimilation or contrast effect found for judgments of at least one of the candidates. Clearly, the contrast effects accounted for not only statistically significant, but also in absolute terms substantial differences in perceptions. Over the 22 basic issues, for example, the differences in judgments of Goldwater averaged 1.06 on the seven-point scale. Differences in judgments of Johnson averaged .64.

What characteristics of an issue may predispose partisans toward contrast *versus* assimilation effects was not fully clarified by the data. Contrast effects generally emerged on those issues quite central to the ideological differences between the candidates. Assimilation effects, on the other hand, appeared on issues where one candidate's supporters were involved, and concerned with the positions that were taken, but where the issue was not salient for the supporters of the other candidate. A more general statement of the conditions determining contrast *versus* assimilation effects must come from further research.

E. Summary

The study tested for contrast and assimilation effects in the judgments of policy positions of Presidential candidates. During the week preceding the 1964 election, 51 extreme partisans for President Johnson and 36 extreme partisans for Senator Goldwater judged positions of each candidate on each of 26 issues. Results showed both groups consistently viewed Goldwater as more conservative on issues than Johnson, although on nine issues differences in judgments were substantial. In addition, on 24 issues either a contrast or an assimilation effect was found for judgments of at least one of the candidates. Contrast effects were more common than assimilation effects, and were more common in judgments of Goldwater.

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IMAGINED DISENGAGEMENT AND COOPERATION: A STUDY OF EXPECTATIONS OF SOCIAL BEHAVIOR* [1]

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A. INTRODUCTION

Social psychologists have long emphasized that a person's behavior in a situation is a product of the internal representation he has of the situation. It has also been generally accepted that "taking the role of the other" in specific situations in childhood becomes internalized into general expectations linking persons and appropriate acts in adulthood. Until recently however, little systematic research was done about what kinds of patterns may be emphasized by internalized representations of social acts.

Beginning with the work of DeSoto and Kuethe (9), tendencies of symbolic representation of interpersonal situations have become the focus of a line of systematic research. Using questionnaire presentation of simplified social situations, it has been shown that situations involving balanced, reciprocal, or positive relationships were more likely to occur than unbalanced, nonreciprocal, or negative relationships (7, 9, 13, 14, 15). Situations with such balanced, reciprocal, or positive relationships are also easier to learn (8, 17, 18, 19). Brown also discusses how status positions may affect conceptions of social structure by showing how people use differing name forms to designate status differences (6).

The purpose of the present study is to relate the basic methodology of these studies to the investigation of conditions which may affect imagined social actions. The categories of social actions are based on previous work by Schellenberg (16). Working from Horney's conception (12) of three basic directions of interpersonal responses (moving toward others, moving against others, and moving away from others), Schellenberg developed the parallel concepts of collaboration, exploitation, and disengagement. In applying these concepts to experimental studies of interpersonal processes, he investigated conditions that affect the expression of these responses in dyadic relationships. The present study attempts to indicate the direction of interpersonal behavior, expressed

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in terms of collaboration or disengagement, that people expect will occur when given an initial situation in dyads whose members hold various positions relative to each other.

B. Method

1. *The Questionnaire*

A questionnaire containing 72 items was developed, each item identifying an actor and another person by last name or by first name and as male or female. The *other* was represented as performing one of these three actions to the symbolic *actor:* 1) helps, 2) hurts, and 3) withdraws from. The respondent was then asked to choose which one of the same three actions would be the most likely response of the symbolic actor. Two examples of questionnaire items:

> John *HELPS* Mary,
> So Mary (HELPS, HURTS, WITHDRAWS FROM) John.
> Miss Porter *HURTS* Mr. Williams,
> So Mr. Williams (HELPS, HURTS, WITHDRAWS FROM) Miss Porter.

Mary and Mr. Williams are here represented as symbolic actors, and John and Miss Porter are symbolic others.

If we use "M" to represent a male identified by last name (e.g., Mr. Williams, Mr. Russell), "m" to represent a male identified by first name (e.g., John, Pete), "F" to represent a female identified by last name (e.g., Miss Porter, Miss Graham), and "f" to represent a female identified by first name (e.g., Mary, Sara), we may identify the following combinations of positions appearing in the questionnaire: M-M, M-m, m-M, m-m, F-F, F-f, f-F, f-f, M-F, F-M, m-f, f-m. Each of these 12 combinations was used with each of the three verb forms to represent the other's initial action. The resulting 36 elements (combinations of sex, name status, and initial action of the other) were duplicated, with the use of different proper names as a check on the consistency of response. This produced a total of 72 items in the main part of the questionnaire.

The questionnaire, titled "Interpersonal Reactions Questionnaire," also asked each respondent to give his name, sex, and, at the end, a general description of how he had chosen his responses to the questionnaire.

2. *Respondents*

The questionnaire was administered during class to 61 students (mostly freshmen) in a general studies, social science course at Western Michigan University.

3. *Primary Analysis*

Primary analysis of the data was based upon a breakdown of the questionnaire items according to position patterns (A), verb forms (B), and respondents (C).

Three main kinds of position patterns were distinguished: A_1, in which both symbolic actor and other were of the same sex and same name status (M-M, m-m, F-F, f-f); A_2, in which symbolic actor and other were of the same sex but with a different name status (M-m, m-M, F-f, f-F); and A_3, in which symbolic actor and other were of different sexes but of the same name status (M-F, F-M, m-f, f-m).

The three verb forms may be designated as follows: B_1, in which the other's action had been "helps"; B_2, in which the other's action had been "hurts"; and B_3, in which the other's action had been "withdraws from."

With 61 respondents, these breakdowns provided for a $3 \times 3 \times 61$ analysis of variance design.

Each questionnaire was divided into nine parts (with eight items in each part) to represent all possible combinations of A and B variables. For each part a disengagement score and a collaboration score were obtained. The disengagement score was simply the proportion of "withdraws from" responses among the total responses that a given respondent supplied for these items. The collaboration score was the proportion of "helps" responses among the total of "helps" and "hurts" (but excluding withdrawal) responses. Thus, nine disengagement and nine collaboration scores were obtained for each respondent, and an analysis of variance was applied to these scores separately for disengagement and collaboration.

C. Results

1. *Disengagement*

Table 1 presents results of an analysis of variance of disengagement. Table 2 gives proportions of disengagement for all possible combinations of A and B variables.

Examination of Tables 1 and 2 indicates the following generalizations:

(*a*) The most powerful influence upon a respondent's indication of disengagement for the symbolic actor was the verb representing the other's previous act. When the other had withdrawn (B_3), respondents usually expected withdrawal from the symbolic actor, and they also frequently selected withdrawal to follow the other's "hurts" (B_2). On the other hand, if the other had been helpful (B_1), an act of withdrawal was very seldom selected for the symbolic actor.

TABLE 1
ANALYSIS OF VARIANCE OF DISENGAGEMENT

Variable combinations	*df*	Mean square
Between Position Patterns (A)	2	.332*
Between Verb Forms (B)	2	24.566*
Between Subjects (C)	60	.139*
Interaction A × B	4	.791*
Error	480	.057
Total	548	

* $p < .01$.

(*b*) Disengagement was generally highest when symbolic actor and other were of the same status but of different sex (A_3), and lowest when actor and other were of same sex and same name status (A_1).

(*c*) The only exception to the pattern just mentioned is that the very highest disengagement was indicated for persons of the same sex and name status following an act of withdrawal (A_1B_3, Table 2). This apparent accentuation of reciprocity with persons of similar position is undoubtedly the strongest element in the A × B interaction effect reported in Table 1.

(*d*) There were also significant variations from respondent to respondent in the frequency with which they selected responses of withdrawal. However, attempts to relate these differences to sex differences, differences in scores on the Allport-Vernon-Lindzey *Study of Values* (1), and scores on various aptitude tests available for the respondents failed to indicate any significant patterns.

2. *Collaboration*

Table 3 presents results of an analysis of variance of collaboration. Table 4 gives proportions of collaboration (i.e., "helps" responses among the total

TABLE 2
PROPORTION OF DISENGAGEMENT RESPONSES BY POSITION PATTERNS AND VERB FORMS

	Verb form of previous act			
Position pattern	B_1 (helps)	B_2 (hurts)	B_3 (withdraws)	Total
A_1 (Same sex, same name status)	.012	.359	.809	.39
A_2 (Same sex, different name status)	.020	.547	.662	.41
A_3 (Different sex, same name status)	.025	.678	.719	.47
Total	.02	.53	.73	

TABLE 3
ANALYSIS OF VARIANCE OF COLLABORATION

Variable combinations	*df*	Mean square
Between Position Patterns (A)	2	1.560*
Between Verb Forms (B)	2	35.801*
Between Subjects (C)	60	.223*
Interaction A × B	4	.480*
Error	480	.066
Total	548	

* $p < .01$.

of "helps" and "hurts") for all possible combinations of A and B variables.

Examination of Tables 3 and 4 suggest the following generalizations:

(*a*) The most powerful influence upon a respondent's indication of collaboration for the symbolic actor was the verb representing the other's previous act. When the other had helped (B_1), respondents practically always selected collaboration for the symbolic actor. When the other had hurt (B_2), collaboration was rare; and when the other had withdrawn (B_3), collaboration was intermediate.

(*b*) Collaboration was generally highest when the symbolic actor and other were of the same sex but of different name status (A_2).

(*c*) There were also significant variations from respondent to respondent in choice of collaborative responses. However, attempts to relate these differences to sex differences or scores on various aptitude tests available for the respondents failed to indicate any significant patterns. Only two correlations with variables of the Allport-Vernon-Lindzey *Study of Values* were statistically significant (at the .05 level): respondents who had the highest frequencies of "helps" responses tended to be high in religious values and low in economic values.

TABLE 4
PROPORTION OF COLLABORATION RESPONSES BY POSITION PATTERNS AND VERB FORMS

	Verb form of previous act			
Position pattern	B_1 (helps)	B_2 (hurts)	B_3 (withdraws)	Total
A_1 (Same sex, same name status)	.998	.101	.180	.43
A_2 (Same sex, different name status)	.985	.308	.486	.59
A_3 (Different sex, same name status)	.989	.083	.249	.44
Total	.99	.16	.31	

D. Discussion

Most of the results fit a general pattern of reciprocity (11). These results, as well as some results not showing simple reciprocity, may be also related to Schellenberg's theory of dependence effects. Schellenberg makes the basic prediction that the higher a person's dependence on a relationship, the greater will be his collaboration and the lower will be his disengagement. He further specifies that "the tendency toward collaboration with the other varies directly with the amount of collaboration from the other" and that "the tendency toward disengagement from the other varies directly with the exploitation by the other" (16). Both of these propositions stem from the more basic assumptions about dependence effects (collaboration from the other person strengthens one's own dependence on the relationship, and exploitation from the other weakens one's dependence), and both of these are clear summaries of the way symbolic actors were seen as behaving in the present study: they were most likely to show collaboration after the other's "helps" and disengagement after "hurts."

But not all the findings fit nicely into this theory of dependence effects. An additional analysis of data shows that in situations of unequal status, the "dependent" (lower status) person did not show higher cooperation. Rather, the highest collaborative tendencies (at least in B_2 and B_3 conditions) occurred when an actor represented by last name reacted to a same-sex, first-name other. Dependence theory would not predict such a result. However, such a result is consistent with the suggestion of Berkowitz and associates that a social responsibility norm of providing assistance for others is frequently active even when there is no expectation of reward in return (2, 3, 4, 5, 10).

Probably situations where the other has just hurt the symbolic actor (B_2 in Table 4, with a further breakdown in Table 5) offer an especially clear opportunity for the expression of a responsibility norm. If we are to interpret the different degrees of collaboration in terms of the relative degree of application of a responsibility norm, we can suggest some positions in dyadic relations for which responsibility norms appear to apply most strongly. Taking into account the data of Table 5 and the tendency of respondents to explain their perceptions of status forms in terms of adults and children, we might infer the following rough order, from greatest application to least application, of a responsibility norm: (*a*) adults to children, (*b*) adults to adults, and (*c*) children to either adults or other children.

However, the invocation of a responsibility norm to interpret some of the results raises as many questions as it answers. Is this to be seen (*a*) as an entirely separate influence from the overall more dominant influence of reciproc-

ity, (*b*) as a pattern of response to certain extreme conditions of dependence, or (*c*) as a special case of reciprocity? In the first case, we consider the norm of social responsibility as an external factor that simply is added to certain kinds of interpersonal relationships. In the second case, we see it as one of two tendencies—frequently opposed—to help another more, either when one is especially dependent or when the other is especially dependent. In the third case the relationship of an actor to his internalized "generalized other" becomes a side relationship with pressures toward reciprocity (e.g., to satisfy one's conscience in return for self-respect) that may sometimes outweigh the more apparent and objective relationship to another person. We cannot tell from the present study which of these three approaches might be most fruitful for relating a responsibility norm to the general expectations of reciprocal exchange.

TABLE 5
EFFECTS OF VARIOUS COMBINATIONS OF POSITIONS UPON COLLABORATION, RESPONSES TO "HURTS" ONLY

Position of symbolic actor	Position of other	Proportion of collaboration
F	f	.49
M	m	.43
F	M	.22
M	F	.18
F	F	.14
M	M	.12
m	f	.10
f	f	.10
m	M	.10
f	m	.05
m	m	.05
f	F	.05

E. SUMMARY AND CONCLUSIONS

An "Interpersonal Reactions Questionnaire," which presented a series of simple dyadic situations involving the names of actors and a verb-act, was administered to a group of college students in order to elicit their predictions of likely responses to the situations.

The previous act was the strongest factor affecting what action would be seen as ensuing. Helping acts called forth helping responses, and withdrawal acts called forth withdrawal responses. This is in line with predictions of simple reciprocity and Schellenberg's theory of dependence effects.

Only with previous "hurts" was there a departure from simple reciprocity: hurting acts most frequently called forth withdrawal responses. But even here

we find an interesting pattern of reciprocity: in those situations where symbolic actor and other were of the same sex and name status, and only in such situations, the most frequent response to "hurts" was again "hurts." This is in line with reports of DeSoto and Kuethe, and other findings in the present study, that individuals of the same status are expected to share reciprocal relationships, while individuals of unequal status are more apt to be perceived as having nonreciprocal relationships.

One type of unequal status relationships which showed a distinctive pattern of results was that of individuals identified by last name responding to individuals identified by first name. In this case an unusually high amount of collaboration was perceived, conflicting alike with notions of simple reciprocity and predictions of dependence effects. The concept of a "responsibility norm" was used to help explain these results. Such a norm of responsibility is apparently perceived as especially applicable to the reactions of adults to children.

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STUDY OF MOTIVATION IN A DEVELOPING COUNTRY: CONCEPT OF HAPPY LIFE AMONG INDIAN FARMERS*

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A. INTRODUCTION

As a part of a larger research scheme (3), a study has been made of motivation and aspiration of rural population. Realizing the key role of the agriculturists in the process of rapid social and economic growth in the developing countries, the planners in India, in their general framework of India's Five Year Plans, formulated the community development program in 1952 for inducing intensive economic development and accelerated social change in the rural population. Conceived in psychological terms, the program involves a transformation of the attitude and mental outlook of the people and the instilling in them an urge for a higher standard of life. An attitude of contentment, apathy, and resignation, rooted in religious traditions, has been a major block in the path of material development of the country. Entrusted with the problem of bringing about a rapid socioeconomic development, the planners in India formulated the community development scheme with full realization that progress and rapid economic growth would ultimately hinge upon the strong urge for betterment and the enthusiasm which the villagers display for new technologies in agriculture and other spheres which would serve as the means for the production of wealth.

Against this background, the present research project was formulated for making a comparative study of the motivation, aspiration, and outlook of villagers from areas which had shown progress as a result of the community development program and others where progress had been negligible. In the present paper, an analysis of the concept of happy life of the farmer has been made.

B. METHOD AND PROCEDURE

One of the common criticisms against the use of direct question and interviewing for eliciting motivation is that the respondent, if he wishes, can easily conceal his real motives and attitudes. Even if he is completely honest, there is always the possibility of consciously stated goals and motives hiding the dy-

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namics of urges. Besides, the use of elaborate questionnaire on a largely illiterate, naive, and unsophisticated rural population in India is fraught with innumerable difficulties. Therefore, in the present investigation, a very simple technique was used in which the subjects were required to give in their own words what they considered to be a "happy life." They were encouraged to describe that life in their own words, and replies were noted verbatim by the investigators. Full encouragement was given to them for making detailed responses. However, quite a large number initially responded only in one or two sentences. In such cases, they were encouraged to give additional thought about "happy life," and sufficient time was allowed them for making detailed responses. If, however, the content was insufficient, two specific questions of an open-ended character were put: viz., "What does a person possess who is said to have a happy life?" and "In order to make your life happy, what are the things you would need?" The assumption behind the test was that the subject in formulating his concept would provide a human and personal document, a record of his personal thoughts, and would indicate therein his needs, aspirations, goals, attitudes, and values.

For the purpose of analysis, scoring categories were framed. They were grouped under eight broad headings: (*a*) Personal and immediate needs (food, house, money, and cloth); (*b*) Agricultural and professional needs (land, irrigation, implements, cattle, good agricultural produce, fertilizer and plant protection, service and business, and efficiency); (*c*) Family and social needs (desire for family, children's welfare, happy family relations, and happy social relations); (*d*) Community and general needs (transport and communication; education; security; social service; health and sanitation; village peace, prosperity and unity; national peace, prosperity and unity); (*e*) Psychological needs (prestige and status, freedom from worries, recreation and relaxation, need for achievement, and values and ideals); (*f*) Dependence (governmental dependence, and dependence on supernatural agencies); (*g*) Unrealistic aspirations; and (*h*) Undefined needs. Thus, there were 32 descriptive categories used in the coding of the responses. The category of *unrealistic aspirations* was used whenever the coder felt that the subject was expressing certain needs and aspirations grossly out of proportion with the present economic and other conditions of the respondent. Similarly, whenever specific needs were not stated but general statements were made like "All my needs must be satisfied" or "I want everything" without specifying any particular need or line of aspiration, the category of *undefined needs* was employed.

Besides these 32 thematic categories, three bipolar categories were also scored: I. *Only Necessities* versus *Luxuries too;* II. *Reality-oriented* versus

Fantasy-oriented; III. *Clarity* versus *Vagueness.* If the coder felt that the respondent had expressed needs which covered only the bare necessities of life, it was scored as such. If the respondents went beyond mere necessities and aspired to attain items like watches, radios, transistors, and so on, score was awarded under the category of *luxuries too.* If the needs and aspirations were felt to be in consonance with the present condition of the villager and were considered attainable, the protocol was classified as *reality-oriented.* If there were items in the protocols which were fantasy-like and reflected aspirations and hopes which were out of proportion with the existing condition of the villager and were judged to be impossible as far as their attainment was concerned, it was scored as *fantasy-oriented.* If in the judgment of the coder the subject seemed to be clear as regards his needs and aspirations, the protocol was scored as *clear.* If no specific needs, motives, and aspirations were stated and the protocol consisted of only vague wishful statements, it was scored under the heading of *vague.* These bipolar categories were scored on the basis of the impression formed by the coder with regard to each protocol and were done after the coding of responses into 32 thematic categories had been finished.

Before the final coding was done by the investigators, intercoder reliability on a small sample of 30 cases was worked out. Only when it was found that there was 80 percent or more agreement between the investigators, was the final coding of the data made. In order to ensure continual intercoder reliability, the codings made by the two investigators were periodically checked and their interrelationship was worked out so that the intercoder agreement never fell below 80 percent. Whenever the agreement between the investigators was less, they were made to work jointly on a small sample of cases by consulting one another, and to return to final coding only when there was high degree of mutual agreement.

C. Sample

The study was conducted in six villages in the community development areas in the district of Allahabad. A list of all the 27 community development blocks in the district was made, and they were graded by the block officials on the basis of the response to the development program. Four blocks were selected for study—two being unanimously judged as the "most advanced" and the other two as "very backward" with regard to agriculture and other development projects. From each of these blocks, an inventory of all the medium-sized villages with a population of around 600 and with about 100 households was made. Basing their judgment on the response displayed by the villages to

the development program in agriculture, adoption of public health measures, activities of the village *panchayat* (council), and participation in community welfare activities, the block officials and the research personnel assessed the extent of development in these villages. From the two advanced and two backward blocks, 10 villages which were considered as "most developed" and 10 with least development were respectively isolated. There was complete unanimity with regard to this assessment. From each of these two categories, three villages were randomly picked for investigation. They were generally similar in their topographical features, nature of land and crops, and distance from the nearest city. It was felt that a comparative analysis of two extreme categories of "most developed" villages from the advanced blocks and "least developed" villages from the backward blocks would magnify the factors underlying their development.

All the households in these villages were located; and one adult member from every household, generally the head of the family, was tested. The total sample consisted of 300 individuals from the most developed, and 290 from the least developed villages, constituting 90.81 and 89.56 percent respectively of the total number of households in the two categories of the villages.

D. Results

The "happy life" projections revealed extreme paucity of content. The villagers were generally unable to elaborate their concept of happy life in detailed and concrete terms. In this respect, those from the developed areas fared a little better and gave comparatively fuller account of what for them seemed to constitute a happy life.

The content analysis of the protocols revealed a high degree of similarity between the villagers in their concept of happy life and the pattern of needs and values expressed by them. The frequency with which each category was mentioned by individuals in each village was noted; rank-order correlations between the six villages ranged from .76 to .96 with a mean of .87. The data for the three developed villages were pooled together and correlated with those of the three undeveloped ones. The correlation was very high (*rho* = .96). In other words, there was a high degree of intervillage similarity in the general pattern of needs and values expressed by the villagers and their concept of what they considered to be a good life.

Table 1 indicates that in both groups of villagers, maximum emphasis had been put on the fulfillment of the following needs: food, cattle, house, money, land, cloth, irrigation, desire for family, agricultural implements, transport, and communication. The categories which were least in frequency were values

and ideals, health, national peace and prosperity, peace, progress and unity of village, fertilizer and plant protection, need for achievement, social service and happy social relations. Both with regard to the items most frequently emphasized and those least frequently emphasized, there was striking similarity between the developed and undeveloped villages. The data revealed overwhelming concern with personal and immediate materialistic needs. Almost all of them centered around the individual, family, or agricultural-professional needs and did not reach beyond the spheres of domestic concern. They seemed to revolve around the immediate needs of living for the individual and the family.

TABLE 1
TEN MOST FREQUENTLY MENTIONED CATEGORIES
(in percentage)

Categories	Developed group ($N = 300$)	Undeveloped group ($N = 290$)
Food	78	75
Cattle	68	63
House	63	49
Money	55	63
Land	55	60
Cloth	49	48
Irrigation	41	36
Desire for family	39	39
Implements	35	—
Transport and communication	34	50
Education	—	29

Though the concept of happy life and pattern of needs expressed in the protocols were similar, there were some interesting differences between the two groups of villages with regard to some specific needs. To bring out the differences, categories which differed in their frequencies by over seven percent were separately analyzed. Subjects from the developed villages showed significantly greater concern for house, prestige, status, security, and freedom from worries. On the other hand, among the undeveloped villagers, there was greater emphasis on money and transport and communication. For the bulk of the categories there was no difference between the highly developed and undeveloped villages.

Analysis of the bipolar categories reveals certain differences between the two groups of villagers (Table 2). While there was negligible difference with regard to concern for either necessities or luxuries, the happy life projections were significantly more reality-oriented among the developed group and more fantasy-oriented among the undeveloped ones. Moreover, the protocols were more frequently coded as being *clear* for the former group, but were regarded as *vague* and *undefined* in the undeveloped group. In other words, villagers

from the undeveloped blocks frequently mentioned needs and ideals which were vague, undefined, and entertained unrealistic aspirations. A relatively greater percentage of them lacked a properly formulated need structure, and frequently allowed themselves unrealistic flights of imagination and dreamed of cars and aeroplanes which were obviously beyond their means with no likelihood of their being a reality in the foreseeable future. Their responses were characterized by vagueness and lack of specificity.

TABLE 2
FREQUENCY OF BIPOLAR CATEGORIES
(in percentage)

Categories	Developed group	Undeveloped group	χ^2
I. Only necessities	56	51	1.03
vs.			
Luxuries also	44	49	
II. Reality-oriented	76	66	6.29*
vs.			
Fantasy-oriented	24	34	
III. Clear	90	76	19.09**
vs.			
Vague	10	24	

Note: In the developed group, seven, seven, and eight protocols, and in undeveloped group 33, five, and seven protocols, respectively, in the three categories could not be coded. They have been excluded in the calculation of the percentages.
* $p = < .05$.
** $p = < .01$.

E. DISCUSSION

Greater awareness of needs seemed to characterize the farmers from the developed villages. Their projections of happy life were relatively clearer and described in concrete terms. Though most of the protocols of the villagers, irrespective of the area from which they came, were generally marked by paucity of content, farmers from the developed areas tended to describe what constituted for them a happy life in greater detail and in definite terms. To that extent, they seemed to be comparatively more aware of their needs and what they wanted in life.

The second finding of the investigation was that the patterns of needs and values as reflected in the happy life projections were very similar in the two groups. The villagers also displayed overwhelming concern with personal and immediate materialistic needs. The wants that they expressed in their protocols were generally egocentric, and were confined to the matters of immediacies of subsistence and daily living. The urge for collective effort seemed weak, and

there was little evidence that the villagers had any developed community feeling, village consciousness, or had much concern for problems of larger units like the state or the country at large. A great majority of rural people did not share in the concept of ever-rising standard of living.

The phenomenon of restricted motivation and limitation of wants has its roots in poverty which has plagued the rural population for centuries. Villagers had been so preoccupied with the problems of their subsistence that community consciousness and other high level needs had either remained anemic and dormant, or had not developed to an extent to make much difference in the process of living. Wanting more than they possessed had seldom been rewarded. The situation was characterized by cognitive expectancies, learned through years, of nonfulfillment of their needs. Frequent frustration of most of the needs had dampened enterprise and engrained an attitude of contentment with only a few things of life. Traditionally, restriction of wants has almost a religious sanction, and remains a valued attitude in life for a large number of Indians. As such, in spite of marked differences in the economic development in the two groups of villagers, corresponding differences in the pattern of motivation had not come about.

It has been tacitly assumed by the planners that due to extreme poverty, desire for higher levels of living would be inherent in the masses and that, given the resources and financial incentive, everyone would strive for his economic betterment as a matter of course. This has not been borne out by the present findings. Psychological transformations had not necessarily followed in the wake of economic development. It is felt that economic development is a highly complex process produced by intricate interactions between a number of variables, economic, social, and psychological.

In spite of similarities in general pattern of needs, the farmers from the developed areas were significantly more reality-oriented and precise than those from undeveloped areas. On the other hand, the protocols of the villagers from the undeveloped group were characterized by vagueness, lack of specificity, and reflected unrealistic formulation of needs. The needs as expressed therein were not only undefined, but often fanciful and beyond their span of attainment. Generally speaking, they were either too greatly tied down to bare necessities or they resorted to unrealistic flights of imagination in spelling out their needs and stating what they construed to be a happy life. When an individual feels the absence of means for attaining his aspirations, he often tries to reduce the pain attendant upon it by increasing the distance between himself and his aspirational goals (1). This mechanism is reflected in cherishing

fantasy-like goals and vague wishes which as a motivational variable remained weak and ineffective.

In short, agricultural-economic development had not produced significant and vital changes in the motivational structure among the villagers. Though economic development generated to a certain extent reality-orientation and greater awareness of needs, it had not produced greater consciousness of community needs or need for collective effort which is vital to the all around development of the villages. It is felt that one of the imperative necessities for rapid economic growth is a proper channelization of motives among rural population (2). The study indicates that the needs and wants are to some extent felt and perceived by the villagers in vague and general terms. What is required is to bring them to the surface and make them effective as energizing and directive agencies in the working life of the average villager. An amorphous need-structure seldom gets translated into behavior realities in concrete and fruitful form. In order to shape and sustain social and economic development, it is essential that human urges are experienced and expressed in specific terms capable of being translated into a concrete action program.

F. Summary

A comparative analysis of the concept of happy life was made among 300 Indian farmers from the developed and 290 from undeveloped villages. The pattern of needs and values reflected in such projections were similar in the two groups. Villagers were overwhelmingly concerned with immediate economic values and did not frequently display needs transcending their purely personal or familial spheres.

Differences existed with regard to clarity with which the needs were expressed, and to the extent they were realistic or fanciful. The projections of the farmers from the developed group were comparatively more reality-oriented, and characterized by greater precision and clarity than those from the undeveloped group. On the other hand, farmers from the undeveloped villages tended more frequently than farmers from the developed villages to indicate needs beyond their span of attainment, and in terms which were general and vague. The need for proper channelization of urges as an important precondition for rapid socioeconomic development is stressed.

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THE BEHAVIOR OF TASK-ORIENTED (LOW LPC) AND SOCIALLY ORIENTED (HIGH LPC) LEADERS UNDER SEVERAL CONDITIONS OF SOCIAL SUPPORT*

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A. INTRODUCTION

The major purpose of this study was to describe, under three conditions of group-member social support, the behavior of group leaders who differ in certain personality attributes.

Leadership studies have identified two major clusters of leadership behavior. These clusters have been variously described as task-oriented *vs.* socioemotionally oriented (2); production *vs.* people oriented (3); and initiation structure *vs.* consideration (8). The measuring instruments used to identify these clusters rely, by and large, on leader self-descriptions and, therefore, are likely to reflect the leader's descriptions of how he thinks he should behave, rather than how he actually behaves. What is needed is a sample of the leader's actual behavior. On the presumption that this behavior is both relevant to his performance and reflects his task *vs.* socioemotional emphasis, it would be a more valid measure of his leadership style.

One activity which most group leaders must perform is the evaluation of their subordinates. The leader's ability, and/or willingness, to discriminate sharply between his best and worst subordinate may not only be relevant to group performance, but may also reflect the leader's task *vs.* socioemotional style of behavior. Thus, Fiedler (4) classifies leaders by the extent to which they discriminate, on a 17-item, bipolar adjective checklist (semantic-differential), between their least preferred co-worker (LPC) and their most preferred co-worker (MPC). Leaders who discriminate sharply between LPC and MPC are presumed to be task-oriented, while those leaders who assimilate differences between LPC and MPC, and, thus, fail to discriminate between their least and most preferred co-workers, are presumably considerate or socio-

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emotionally oriented in their behavior toward subordinates. The first objective of this study was to validate the LPC-MPC measure; this was done by direct observation of leaders who differ on this dimension. However, since Fiedler's research indicated that LPC scores can be substituted for the actual discrepancy score between LPC and MPC, LPC measures only are used in this study as one independent variable.

Subsequent studies by Fiedler (5) also showed significant relationships between LPC scores and group effectiveness. However, the direction of these relationships is contingent upon the favorability of the total group situation to the leader. The three situational variables which influence favorability to the leader are task structure, position power, and affective leader-group relations. Affective leader-group relations, according to Fiedler, is apparently the most important of these situational variables which affect a group's performance. Another purpose of the present study was to investigate the *behavior* exhibited by high and low LPC leaders under varying affective leader-group relations.

Previous research relating leader's LPC scores to behavior found that low LPC leaders were more active and made more solution proposals than did high LPC leaders. On the other hand, high LPC leaders made more procedural remarks (7). Fiedler, London, and Nemo (6) concluded that low LPC leaders made more suggestions, gave more orientation and information, asked for more suggestions, and had a greater amount of total activity than high LPC leaders, while high LPC leaders agreed more and gave more opinions or evaluations than low LPC leaders. Furthermore, Meuwese (9) found that high LPC leaders were more considerate, and that low LPC leaders used a "prodding" technique to get their work completed. Summarizing the available data, Fiedler (5, p. 155) concluded:

> High LPC leaders behave in a manner which promotes member satisfaction and lowers member anxiety; they are more compliant, more nondirective, and generally more relaxed. . . . They are described by their groups as being higher on the Ohio State "consideration" dimension. . . .
>
> Low LPC leaders, on the other hand, give and ask for more suggestions, are less inclined to tolerate, or to make, irrelevant comments, demand and get more participation from members and are more controlling and managing in the conduct of their group interaction. . . . Low LPC leaders also interrupt group members more often, contribute more statements, again indicating less concern with having pleasant relationships with others in the group.

B. Hypotheses

The above findings led to the formulation of three hypotheses. Briefly, it was hypothesized that under three experimentally induced conditions of affec-

tive group relations (Group Support, Group Medium Support, and Group Deprivation) in which the leader's position power (low) was held constant the following would occur: (*a*) High LPC *S*s will behave in a less dominant, antagonistic and stress producing manner than low LPC *S*s. (*b*) High LPC *S*s will behave in a more accepting manner than low LPC *S*s. (*c*) The difference in behavior between high and low LPC *S*s will increase as the favorability of leader-member relations decreases as a result of the gradual withdrawal of group support.

C. Method

The *S*s were 24 male students enrolled in an introductory social psychology course. Of a total class enrollment of 126, they were the 12 with the highest LPC scores and the 12 with the lowest LPC scores on Fiedler's scale. Prior to the experiment, the reliability of *S*s' LPC over a five-week period was .85 ($p < .01$).

Each *S* was instructed to work with three confederates of the experimenter. These confederates were unaware of the LPC scores of the *S*s. The group task was to achieve consensus on the content of three TAT pictures. The time limit was one-half hour. After the *S* and the confederates had entered the experimental room, the *S* was chosen, "apparently" at random, to be the group leader. The experimenter then presented the *S* with paper and pencil and told him it was his responsibility to record the ideas of the group and to coordinate the efforts of the group towards achieving the required consensus. The confederates had been previously trained to respond differentially throughout the experiment to the *S* in the following manner:

Phase 1, *Group Support*: Initially, the confederates endeavored to place the *S* in a position whereby he perceived himself as a superordinate member of the group. They asked for his suggestions, agreed with them, showed solidarity, and generally provided support to the *S*.

Phase 2, *Group Medium Support*: During this phase the confederates created a group atmosphere of increasing ambiguity. The *S* was decreasingly solicited for suggestions and, when he did present comments, they were not consistently acted upon. At this stage one of the confederates actively disagreed with the *S*.

Phase 3, *Group Deprivation*: In this phase the *S* was placed in a subordinate position. His opinion was not solicited, instead, two of the confederates looked to the third for advice and suggestions. Furthermore, confederates had been instructed not to break a natural silence, and, also, to prevent, short of using physical restraints, the *S* from recording any ideas on paper. Rather than

continually disagreeing with the *S*'s observations, however, the confederates had been instructed to ignore them.

Observations of the *S*s' behavior were recorded by means of the Bales Interaction Recorder, with the use of all 12 of the Bales (1) categories. Interobserver reliability for all categories, for two observers, was .87. Subsequently, four dependent variables were derived for each individual from the original categories (1) as follows: (*a*) *Dominance*: the difference between the summed percentage[3] of "giving" responses ("gives suggestions," "gives opinions," and "gives orientation") and "asking" responses ("asks for orientation," "asks for opinion," and "asks for suggestions"); (*b*) *Acceptance*: the difference between the percentage of "agree" and "disagree" responses; (*c*) *Antagonism*: the percentage of "shows antagonism" responses; and (*d*) *Tension Release*: the percentage of "shows tension release" responses.

The experimental design consisted of a 2 × 3 Analysis of Variance (ANOV) with repeated observations: i.e., two levels of LPC and the three experimental conditions corresponding to Group Support, Group Medium Support, and Group Deprivation. Each cell contained an *N* of 12. ANOVs were performed for each of the four dependent variables. Subsequent comparisons among means were performed with the use of the Newman-Keuls test.

D. Results

Table 1 shows the means for Dominance, Acceptance, Antagonism, and Tension Release behavior for high and low LPC under three conditions of social support. Table 2 gives the corresponding ANOV summary. The difference between mean scores on Dominance for the high ($\overline{X} = 6.4$) and low ($\overline{X} = 10.3$) LPC groups was significant. As expected, low LPC *S*s behaved in a more Dominant manner, regardless of group support, than did high LPC *S*s. Differences due to varying group support were also significant. However, the group support × LPC interaction was also significant. In the Group Medium Support condition, low LPC *S*s exhibited considerably more Dominance than did high LPC *S*s.

The difference between the mean scores on Acceptance for the high ($\overline{X} = 14.5$) and the low ($\overline{X} = 11.6$) LPC groups was significant. As expected, high LPC *S*s behaved in a more Accepting manner, regardless of varying group support, than did low LPC *S*s. Differences due to varying group support were also significant. Acceptance responses decreased with decreasing social

[3] The percentage of responses for each category is derived by dividing the number of responses observed in this category by the total number of responses emitted by the individual.

TABLE 1
MEANS OF DOMINANCE, ACCEPTANCE, ANTAGONISM, TENSION RELEASE BEHAVIOR FOR HIGH AND LOW LPC UNDER THREE CONDITIONS OF SOCIAL SUPPORT

Behavior	Group Support	Group Medium Support	Group Deprivation	Total means
		High LPC Subjects (N = *12*)		
Dominance	7.7	7.7	3.9	6.4
Acceptance	16.1	14.7	12.8	14.5
Antagonism	0.0	1.10	0.48	0.77
Tension Release	2.6	5.2	3.9	3.9
		Low LPC Subjects (N = *12*)		
Dominance	8.2	16.4	6.2	10.3
Acceptance	13.6	12.1	9.1	11.6
Antagonism	0.1	0.72	2.1	1.03
Tension Release	1.5	2.9	1.6	2.0

support for both high and low LPC *S*s. However, high LPC *S*s consistently exhibited more Acceptance than did the low LPC *S*s. The interaction term was not significant.

Contrary to expectations, the difference between the mean scores on Antagonism for the high ($\overline{X} = .77$) and the low ($\overline{X} = 1.03$) LPC groups was not significant, although the difference that was observed was in the expected direction. Differences due to varying group support were significant, as was the group support $\times$ LPC interaction. Within the high LPC group Antagonism increased from the Group Support to the Group Medium Support condition and, then, decreased for the Group Deprivation condition; while within the low LPC group Antagonism increased consistently with decreases in group support. In the Group Deprivation condition the low LPC *S*s exhibited significantly greater Antagonism than the high LPC *S*s. In general, the amount of Antagonism exhibited by all subjects was quite low, probably due to the social undesirability of expressing Antagonism in a laboratory experiment.

TABLE 2
ANALYSIS OF VARIANCE "F" VALUES

Behavior	Between *S*s LPC	Within *S*s condition	Within *S*s condition × LPC
Dominance	7.7*	15.1***	5.8***
Acceptance	15.0**	12.2***	0.7
Antagonism	1.7	10.7***	7.3***
Tension Release	7.9*	1.5	0.18

* $p < .05$, *df* 1,23.
** $p < .01$, *df* 1,23.
*** $p < .01$, *df* 2,48.

The difference between the mean scores on Tension Release for the high ($\overline{X} = 3.9$) and the low ($\overline{X} = 2.0$) LPC groups was significant. As expected, high LPC *S*s exhibited more Tension Release behavior regardless of varying group support than did low LPC *S*s. No significant group support or interaction effects were observed.

In summary, a review of Tables 1 and 2 shows that (*a*) that part of Hypothesis (*a*) which predicted that high LPC's would behave in a less Dominant manner than low LPC's was confirmed under all conditions of group support; (*b*) however, there was no significant difference between scores on Antagonism for the high and low LPC groups, although the difference that was observed was in the expected direction, thus providing equivocal support for Hypothesis (*a*); (*c*) further, the Tension Release scores are much greater for the high LPC *S*s, indicating that, in support of Hypothesis (*a*), high LPC *S*s do behave in a less stress-producing manner under all conditions of group support than do the low LPC *S*s; (*d*) high LPC *S*s clearly showed more Acceptance behavior across varying conditions of group support than did low LPC *S*s, thus confirming Hypothesis (*b*); (*e*) no support was found for Hypothesis (*c*), since the differences in behavior between high and low LPC *S*s did not increase with changing conditions of group support; and (*f*) in addition, the data indicate the existence of certain interactions; these interactions occurred during the observation of behavior classified as Dominant, and as Antagonistic.

E. Discussion

In general, this study provides considerable evidence for the validity of Fiedler's LPC measure as a predictor of socioemotional *vs.* task-oriented behavior of group leaders. Individuals who, in their evaluation of their least preferred co-workers rate them relatively high and are, thus, presumed to be more tolerant than those individuals who rate their least preferred co-workers relatively low, exhibited behaviors illustrative of considerate and socioemotionally facilitative leaders.

Specifically, the more tolerant raters (high LPC) behave in a less Dominant, more Accepting, and more Tension Releasing manner than did those individuals who are intolerant in their ratings of their least preferred co-worker (low LPC).

The expectation that, with a decrease in favorability of the group atmosphere, the behavioral differences between high and low LPC *S*s would be accentuated was not confirmed. Regardless of the LPC effect, and with the exception of the amount of Antagonism exhibited, all the behaviors studied

occurred less frequently in the Group Deprivation condition. Moreover, Dominance and Tension Releasing behavior differed most sharply in the Group Medium Support condition. The incidence of Antagonistic behavior, however, differed between high and low LPC only in the Group Deprivation condition. For Acceptance, the profile of differences was parallel.

Apparently, the opportunity for structuring the behavior of subordinates was optimized under Medium Group Support conditions. In the Group Support condition the favorable atmosphere produced little need for the group leader to exhibit structuring behavior. In the extreme Group Deprivation condition, the compelling behavior of subordinates provided little opportunity for a group leader, who had low position power, to restructure the situation. The more ambiguous situation, the Group Medium Support condition, provided opportunity for the behavioral predispositions of high and low LPC *S*s to become manifest. The major effect of group atmosphere differences appeared in the propensity of low LPC *S*s to increase their attempts at Dominance, while high LPC *S*s tended to increase their Tension Release behavior.

However, the manipulation of varying conditions of Group Support may have suffered from a confounding effect due to differences in behavior that may have occurred simply as a function of *S*s' time in the experiment. Ideally, the three experimental conditions of varying group support should have been randomized. The failure to do this was a major shortcoming in testing Hypothesis (*c*) of this study.

Another interesting finding, not described in the results section, of this study was that those *S*s who were relatively more tolerant in their ratings of their least preferred co-worker (high LPC) produced significantly more problem solutions: i.e., they were more effective leaders. Furthermore, high LPC leaders, on a postexperimental questionnaire, also expressed greater satisfaction with the group experience. In addition, the correlation between effectiveness and satisfaction was significant and of high magnitude only for high LPC leaders and unrelated for low LPC leaders.

Although the major focus of this study was not on effectiveness, and the effectiveness measure was used primarily to focus interaction between leaders and confederates, the results obtained, in spite of the inadequacy of the effectiveness measure, are in line with Fiedler's effectiveness model. That is, under conditions that are intermediately favorable to the leader (averaging across the three group-support conditions), Fiedler's contingency model predicts that high LPC leaders will be more effective.

Returning now to the major objectives of this study, it is concluded, first, that high LPC *S*s indeed do exhibit behaviors illustrative of considerate, so-

cioemotional leaders; while low LPC leaders exhibit behaviors illustrative of structuring, task-oriented leaders. The LPC instrument is an adequate measure of these leadership dimensions, especially since it is based on a sample of leadership behavior: i.e., evaluation of subordinates. And, in contrast with self-description instruments, it is less transparent and, thus, less subject to socially desirable responses.

Secondly, it is concluded that affective leader-member relations is an important situational determinant of the kinds and the incidence of behaviors exhibited by leaders. In a more general sense, this study also reinforces a general finding of other researchers, often ignored by some, that a leader's behaviors are a function, not only of personality, but also of the supportiveness of his subordinates.

F. Summary

The purpose of this study was to describe the behavior of high and low LPC leaders under three varying conditions of group support. *S*s consisted of the 12 most tolerant raters of their least preferred co-worker and the 12 least tolerant raters of their least preferred co-worker among a group of 126 male undergraduates. *S*s were observed by means of the Bales Interaction Recorder; and their behaviors were classified as Dominant, Accepting, Antagonistic, and Tension Releasing. The experimental design consisted of a 2 $\times$ 3 ANOV with two levels of LPC and three decreasing levels of group support. The results showed that high LPC leaders (those most tolerant in their ratings of their least preferred co-worker) behaved in a socioemotional facilitative manner, whereas low LPC leaders (those least tolerant in their ratings of their least preferred co-worker) behaved in a task-oriented manner. The sharpest behavioral differences were observed under conditions of intermediate group support.

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FAMILIARITY AND MUSICAL TRAINING IN THE ESTHETIC EVALUATION OF MUSIC* [1]

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A. INTRODUCTION

A recent empirical reaffirmation that musical training does not affect esthetic evaluation led this author to posit ". . . a natural propensity for the recognition of musical esthetic quality" (1, p. 652). However, whether musical appreciation is basic to the human organism or learned in the process of enculturation has been difficult to assess because of possible confounding by familiarity. With or without reportable awareness, individuals receive considerable exposure to the variety of forms of the music of their culture. It is particularly difficult to escape musical enculturation through radio, television, cinema, and various planned educational programs in our Western societies. Thus, what is viewed by a given culture as an appropriate educational broadening of its citizenry all but obviates the clear assessment of the presence or absence of natural human propensities for the recognition of esthetic quality in music within a single culture. However, because the forms and modes of presentation of Eastern music generally remain little known in our Western cultures, a clear opportunity for assessing natural and trained esthetic response without the confounding of enculturation is provided. The present study was an attempt to minimize the effect of familiarity by using Indian instead of Western music.

B. METHODOLOGY

Three groups of seven male undergraduates each were used: (*a*) Group 1, trained in Indian music; (*b*) Group 2, trained in Western music, but not Indian music; and (*c*) Group 3, with no musical training and no familiarity with Indian music. An Indian kriti, Sarasa Sama Dana by Tyagaraja, played on the Veenā and the Mridanga, was presented on electromagnetic tape in counterbalanced order, and rated on the same 15-scale, three-factor semantic differential technique used previously (1).

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Copyright, 1969, by The Journal Press.
[1] Presented at the American Psychological Association meeting, Washington, D.C., 1967. Appreciation is expressed to Mr. Wooster Welton and Mr. Alan Y. Medvin for their assistance in data collection and analysis.

C. Results

The modes of presentation were differentially rated on all factors. The Veenā presentation was considered less potent ($F = 9.81, p < .01$), more active ($F = 14.71, p < .005$), and more esthetic (evaluative factor; $F = 8.75$, $p < .01$) than the Mridanga presentation by all groups. Overall evaluations indicated that the three groups did not differ significantly on the activity ($F = 2.20, p > .10$) and potency ($F = .16, p > .20$) factors. There was a clear tendency for the Indian trained group to evaluate the piece significantly higher ($F = 2.92, p < .087$) than the other two groups.

A detailed look at the evaluative factor ratings indicated that the familiarity of Group 1 with the musical form and mode of presentation significantly affected the esthetic evaluations. This group rated the Veenā presentation significantly higher than the other two groups combined ($t = 3.90, p < .01$). The Mridanga presentation ratings did not differ across groups and no significant relationships were found between pairs of factors either for all subjects combined or for Group 1 alone.

D. Discussion

When viewed in conjunction with the previous work of this author, it would appear that the crucial factor in positive esthetic evaluation is familiarity through exposure rather than formal training in the given art form. In an earlier study no effect of formal musical training on esthetic evaluation was noted (1). However, since both the trained and the untrained subjects of that study were familiar, by exposure, with the general Western musical forms and instruments used in the evaluated excerpts, a clear statement of the differential effects of these variables was difficult to achieve. The present study helps to clarify the distinction between training and familiarity. Group 1 was trained in Western and Indian music and was thereby familiar with both; while Group 2 was unfamiliar with Indian music and Western musically trained. Group 3, however, was unfamiliar with Indian music and musically untrained. Since the earlier study noted that musical training in a specific musical form does not affect esthetic evaluations over and above incidental familiarity, the differences between Group 1 and the other groups are interpreted with respect to the familiarity with Indian music which Group 1 possessed. Thus, the present findings seem to point toward an enculturation factor in esthetic appreciation of music, which may be separate and distinct from general training in the details of the art form.

E. Summary

Whether musical appreciation is basic to the human organism or learned in the process of enculturation has been difficult to assess because of possible confounding by familiarity. When familiarity is reduced to a minimum by the use of Indian music, semantic differential esthetic evaluations of musical pieces indicate that musical training neither enhances nor greatly disrupts a natural propensity for the recognition of certain musical qualities (activity and potency). Results also suggest that evaluative ratings are positively related to familiarity rather than to formal musical training.

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BIRTH ORDER, SEX, PERCEPTION AND PRODUCTION OF COMPLEXITY*

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A. INTRODUCTION

When a person expresses his preference for stimulus objects, he is engaged in consumer behavior, since his task is simply to perceive the objects and reach some kind of conclusion about them. On the other hand, when he must actually create something, he is engaged in producer behavior; since he must make a product which will then, perhaps, be evaluated by others. Is there any consistency in behavior as a consumer and as a producer? In order to answer such a question it is first necessary to decide what it is that the subject is consuming or producing. In a study of creativity, Taylor and Eisenman (12) had art students rated for creativity by their teacher and had the students choose their most preferred and least preferred polygons, as well as construct designs with material presented to them. The underlying concept was complexity, since the polygons differed along the complexity-simplicity dimension and the designs were scored on the basis of their complexity. It was found that there was consistency in consumer and producer behavior related to complexity. Both students rated high and students rated low in creativity tended to prefer complex polygons and produce complex designs, or to prefer simpler polygons and produce simpler designs. The present study is a follow-up of this research.

Evidence suggests that both birth order and sex are important variables in relation to complexity preferences (4, 5, 6). Birth order has received increasing attention in recent years, since the publication of Schachter's (10) small book in which he showed that birth order was related to affiliation behavior. Schachter's use of female subjects limited the generalization of his findings, since subsequent studies have shown that both birth order and sex are important demographic variables to be considered in such studies as affiliation, complexity preferences, conformity, and related research (3, 4, 5, 6, 9, 11). Presumably, the major basis of birth order and sex differences is the early childhood experience, during which time socialization may be different for the various birth order-sex groups.

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B. Hypotheses

Hypothesis (*a*) predicted that firstborn *S*s would draw the human figure with more detail than later born *S*s. Eisenman (4) has speculated that firstborn females receive more intensive socialization than their later born female peers, and good evidence in support of such a belief is provided by Kammeyer's study (8) of birth order and the feminine sex role among college women. The latter, who tested American college students, concluded that his firstborn females are conservators of the traditional American culture, being more traditionally oriented, more in agreement with their parents, and otherwise more conservative than later born females. As Adler (1) stated, there is also a tendency for more seriousness among firstborn males, as well as among firstborn females. Hall and Barger (7) discovered that firstborn *S*s had tendencies toward seriousness, conservatism, and organizing activities. Of course, most birth order research reported here has been done in the United States, and primarily with college students; the birth order findings may not hold up in other cultures. The reasoning for hypothesis (*a*) was that if firstborn *S*s are more serious or conservative than later borns, it may be that firstborns would more seriously perform on the figure drawing task, thereby producing a more complex (detailed) figure.

Hypothesis (*b*) was the null hypothesis with regard to sex differences in quality of figure drawing.

Hypothesis (*c*) stated that *S*s who prefer complexity when exposed to polygons varying in complexity-simplicity will also produce the more detailed drawing of the human figure. This hypothesis follows from the expectation, confirmed in the Taylor and Eisenman (12) study, that there will be consistency across tasks even though one task involves consumer behavior and the other task calls for producer behavior.

Hypothesis (*d*) predicted that, with regard to birth order differences in complexity-simplicity preferences, firstborn males would prefer more complexity than later born males; but among females the relationship would be reversed, with later born females preferring more complexity than firstborn women. The basis for this prediction is the birth order-sex interaction found in previous studies of complexity-simplicity preferences (4, 5, 6).

Hypothesis (*e*) was that females would prefer more complexity than males, as in previous studies (5, 6).

C. Method

1. *Subjects*

A total of 80 *S*s were tested, including 45 college undergraduates at Temple University, and 35 nursing students at Albert Einstein Hospital in Philadel-

phia. Although there were 47 later born *S*s compared to 33 firstborns, this difference is not significant ($\chi^2 = 1.23$, 1 *df*, $p < .30$). However, inclusion of the nursing students, all but two of whom were females, resulted in a predominantly female sample, with 54 females and 26 males ($\chi^2 = 4.90$, 1 *df*, $p < .05$).

2. *Stimulus Material*

The stimulus material consisted of a photograph of 12 polygons, which was presented to each *S*. The photograph contained nine polygons of asymmetrical random shapes taken from Vanderplas and Garvin (13). There were three each of four-, 12-, and 24-point random shapes. The other three polygons were taken from Birkhoff (2), and were symmetrical shapes of four, eight, and 10 points. Each *S* was provided with a sheet of paper on which to draw the human figure.

3. *Procedure*

*S*s were asked to choose their three most preferred and three least preferred polygons, and to draw the human figure on the sheet provided. In addition, *S*s provided an estimate of their family income, which was used to classify family income as above, below, or within the $7000-$15,000 range.[1] Polygon complexity was defined by the number of points,[2] and a complexity score was obtained by subtracting the total number of points on the three least preferred shapes from the total number of points on the three most preferred shapes. For example, if *S* chose three four-point shapes as his most preferred, and chose three 24-point shapes as his least preferred, his complexity score would be 12 — 72 = —60. *S*s who preferred more complexity than they rejected obtained positive scores, while *S*s who rejected more complexity than they preferred obtained minus scores. The drawings were scored in terms of three categories: good specific detail, good general detail overall but lack of specific detail, and little detail at all. The first category included both those drawings which depicted the full human and had specific detail (eyes, ears, fingers, etc.) as well as those drawings which did not show the entire body, but which contained good detail for the portion drawn. Two scorers independently scored the drawings and obtained agreement on all but four. The disagreement was

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[1] Family income showed no relationship to any of the variables under consideration. All but one of the 35 nurses listed themselves within the $7000-$15,000 range. There was more diversity among the college students, with eight below $7000, eight above $15,000, and the other 29 in the middle, like the nurses.

[2] Some investigators refer to "turns" in polygons instead of "points." To aid in visualization, imagine a square. Squares contain four points; the polygons employed ranged from four- to 24-point shapes.

resolved in favor of the more experienced scorer, and hypotheses tested by using the greatest detail drawings (category 1) *vs.* the drawings without good specific detail (categories 2 and 3).

D. Results

Table 1 summarizes the findings for all hypotheses. Hypotheses (*a*) and (*e*) were supported, and the null hypothesis could not be rejected for (*b*), which was expected. However, the expected generality of complexity behavior (*c*), and the birth order-sex interaction (*d*) were not significant, and these hypotheses were not supported by the findings.

E. Discussion

It was anticipated and found that firstborn *S*s produced human figure drawings with greater detail than the drawings of later borns, and females preferred more complexity than males. Whenever demographic characteristics are investigated with the use of variables of the possibility of birth order-sex interactions and other confounding variables, these two significant findings are quite striking. Although the hypothesis concerning birth order and complexity (detail) in drawings was derived from the linking of the seriousness of firstborns to conservatism, alternative interpretations are possible. Seriousness and conservatism may or may not go hand in hand. With regard to females' showing more aesthetic preference for complex shapes, it cannot be established that the findings are due to greater aesthetic orientation among females; since *S*s were not told that the present study involved aesthetic preference. However, it may be that looking at polygons is aesthetic behavior in spite of what *E* says or does not say, and females indicate their stronger aesthetic orientation by choosing the polygons that artists tend to prefer: i.e., complex polygons.

If females prefer more complexity, why would they not produce more complexity? No specific prediction was made for production of complexity and sex because there are at least two bases for making a prediction, and they suggest opposite conclusions. First, if aesthetic orientation is the main variable underlying the production of human figures, then females might be expected to excel males in their productions. Second, if we think of the behavior necessary for drawing a figure, perceptual-motor ability seems necessary, and males are often superior to females in perceptual or motor skills in our culture. Perhaps these and other variables are operative, and cancel out one another.

The failure to find birth order differences in polygon preference is surprising, and may be a reflection of the sample composition, which was predominantly female, and included only eight firstborn males. There may be regional dif-

TABLE 1
TEST OF HYPOTHESES: NUMBER OF SUBJECTS PER CATEGORY

Hypothesis	Good specific detail	Good general detail	Little detail	First-born males	Later born males	First-born females	Later born females	Males	Females
(*a*)†									
Firstborn	23	6	8						
Later born	18	12	13						
(*b*)									
Males	15	7	4						
Females	26	11	17						
(*c*)									
Preferred complexity	23	7	11						
Preferred simplicity	18	11	10						
(*d*)									
Preferred complexity				2	8	16	17		
Preferred simplicity				6	10	9	12		
(*e*)‡									
Preferred complexity								10	33
Preferred simplicity								16	21

† $\chi^2 = 3.27$, $df = 1$, $p < .05$ (one-tailed test).
‡ $\chi^2 = 2.76$, $df = 1$, $p < .05$ (one-tailed test).

ferences in aesthetic preference (4), in which case the findings seem consistent with a previous study of Temple students. Generalizations about aesthetic preference become extremely difficult if regional differences exist, and much previous research would have to be interpreted cautiously.

The present research suggests that both birth order and sex may be important variables, but their relationship to other variables is complex and perhaps mediated by other variables of which the experimenter is unaware. One cannot naively assume that if birth order is important in drawing the human figure it will also be important in some other task, even though this other task may involve what seems to be similar attributes. Even without the notion of birth order or sex, the present study suggests that one may not assume generality in behavior until that generality is empirically demonstrated. Thus, our language system enables us to note that many-sided figures are complex and that a drawing with much detail is also complex. This does not necessarily mean that a person who prefers complex polygons will produce complex figure drawings.

F. Summary

Birth order and sex data were obtained from 80 *S*s, who also expressed their aesthetic preferences for polygons varying in complexity-simplicity and produced a drawing of the human figure which was rated for detail. As predicted, firstborn *S*s drew more complex (more detailed) drawings than did later born *S*s, and females preferred more polygon complexity than males. Perception of complexity (in polygons) and production of complexity (detail in drawings) showed no significant relationship. Additional hypotheses are discussed, and the results related to previous findings.

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EVALUATIVE REACTIONS TO THE VIEWING OF PSEUDO-DANCE SEQUENCES: SELECTED TEMPORAL AND SPATIAL ASPECTS* [1]

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A. INTRODUCTION

The research to be described here represents two initial steps in an attempt to approach the question: how do people adjust to time schedules: i.e., how do they learn to perform interactive time and space contingent routines? Further, what aspects of such routines importantly affect ease or difficulty of learning and of continued successful performance? This work is part of a program of studies relating temporal perception to social behavior.

Traditionally the experimental investigation of temporal phenomena has been overwhelmingly concentrated on the individual and the fleeting interval (seconds and milliseconds). The literature has been ably summarized by Fraisse (4). Recently interest has developed in relationships between time perception/orientation and population variables (10, 13, 14), situational-experimental factors (3, 9), and measures of personality (1, 8). The work, however, is scattered and as yet inconclusive (5). In general, questions of a social-psychological nature about time remain largely unexplored; and integration with possibly relevant thinking from the areas of aesthetics (7) and sociology-anthropology (2, 15) is lacking.

In the absence of an existing body of data to serve as resource and provide guidelines, it was decided to begin the present program with what seemed logically primary and most simple—an examination of observers' evaluative reactions to a temporally (and spatially) varied event-series—thence to examine observer-participants' evaluative reactions, and finally to study behavioral,

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[2] We wish to express our appreciation for the assistance of Dr. John Hanson in the making of our film and Mr. Ben Binder in the construction of the dancing-dot apparatus.

as well as evaluative, reactions. It is the first two of these studies which this paper will report.

B. Procedure: Study I

An appropriate first vehicle for the expression of timed and patterned interactive sequences is the dance (or dance-like behavior) which seemingly epitomizes this kind of action pattern. A suitable medium for the display of dance-like behavior is the moving picture, which affords both control and repeatability. The filmed dance sequences here employed may be thought akin to rudimentary folk rituals or interpreted as unadorned, relatively content-free motion tracings incidentally generated by human "points."

1. *The Stimuli*

Twelve dance sequences were recorded on 16mm black and white film, the 12 constituting a 4 × 3 factorial design. The constant elements in the film were (*a*) the dancers—four undergraduate college women, dressed alike in black leotards, instructed to maintain a "neutral-solemn" mood and to move as nearly identically as possible; (*b*) the field and camera angle—homogeneous blank wall and bare floor, camera at eye level and unmoved throughout; (*c*) length of each sequence—one minute; (*d*) start and finish of each sequence—every dance began with the dancers standing one in each corner and ended with the dancers standing in the center, their clasped hands raised overhead.

The two experimental variables were tempo (with four levels) and complexity (with three). Each of three levels-of-complexity dances were filmed in each of four tempi: (*a*) slow—approximately one beat (i.e., step) per second; (*b*) fast—approximately three beats per second; (*c*) increasing—beginning with one and ending with three beats per second; (*d*) decreasing—beginning at the fast tempo and ending at the slow. The second variable, complexity, was defined in terms of the differential utilization (number, sequence, times repeated) of six basic movement patterns: (*a*) Circle clockwise, (*b*) Circle counterclockwise, (*c*) Approach the center, (*d*) Retreat to the corner, (*e*) Exchange corners up-and-down stage, and (*f*) Exchange corners across stage.

The simplest complexity level, the "core" pattern, consisted of the sequence *a-b-c-d*. For the slow tempo the sequence was performed twice; for the changing tempi, three times; for the fast tempo, five. The middle level of complexity, the "core-plus" pattern, consisted of an alternating sequence of the core (*abcd*) and an *a-c-b-d* pattern. The highest level of complexity, the "complex" pattern, similarly contained in alternation the units *abcd* and *acbd*; however,

at start and finish and between each such unit the dancers made the double position change coded as *e-f*. Thus, for example, the most complex dance at the fast tempo consisted of the sequence (as coded): *ef acbd ef abcd ef acbd ef abcd ef*.

2. *Subjects and Administration*

Twenty-eight *S*s viewed and responded to the 12 dance sequences. The *S*s were male undergraduate students who were paid for their time (at most about one and one-half hours total). The film was shown in four different versions, each a different ordering of the individual dances. Additionally, all *S*s saw and responded at the beginning to three "warm-up" dance sequences, each of the "slow tempo, complex pattern" dance, but involving for the first, one dancer; then two; then three.

The specific orderings of the films were random with two restrictions: (*a*) that across the four orders each film should fall once in each quarter (1st three, 2nd three, etc.); and (*b*) that no order should include all of one tempo or all of one pattern within one-half of the presentation sequence. The "order" element thus added to the two-factor design a third factor (order, with four levels) and—nested within order—"subjects," seven per order.

3. *The Responses*

Instructions to the *S*s stressed that they were participating in a perception and impression-forming task and that the judgment situation was strictly exploratory: "You are to watch an experimental movie and give us some reactions to it." After each one-minute dance sequence the projector was stopped, the lights were turned on, and the *S*s filled out a three-part questionnaire. The "during" questionnaire began with a semantic differential composed of nine pairs of adjectives, three for each of the three factors—evaluation, potency, activity—generally identified on such measures (12). The *S* rated each film on a seven-step scale for each adjective pair. With the direction of favorability for each pair established as that which had been so described by similar subject populations, each rating was scored from zero (most negative) to 6 (most positive); and a "semantic favorability" score was obtained for each film for each *S* by summing across the nine adjective ratings.

The second part of the questionnaire contained two items. From the following list the *S* checked those words which described "the emotions the dancers felt" and circled the one most appropriate: sorrow, hate, fear, love, joy, friendship, anger, amusement, "other." These data yielded a frequency distribution for each film. The other item in this part provided a second, more

explicitly evaluative, favorability estimate. The *S* judged each film "as an art form," rating to what extent (not at all, a little, very) the dance was pleasing, exciting, soothing, boring, and interesting. Each rating was scored from zero to 3 (with "boring" reversed), and for each film for each *S* the ratings were summed across the five adjectives to provide the "adjective favorability" score.

Finally, the following three items were administered as part of the "during" questionnaire (scoring in brackets): (*a*) Did the time pass quickly [2], moderately [1], slowly [zero]? (*b*) Did the dancers seem to hurry [2], drag [zero], move OK [1]? (*c*) Was the sequence simple [zero], complex [2], medium [1]? Primarily these questions were intended to serve as checks on the independent variable manipulations.

When the *S*s had finished rating the final (12th) film, they completed a one and one-half page "Postmovie Questionnaire." This questionnaire, like the "during" one, was in three sections. Section A consisted of seven open-ended questions, probing for the *S*'s awareness of similarities and differences among the films and his general grasp of the underlying pattern. Sections B and C held a series of face-sheet type background information questions, the examination of which yielded essentially negative results which will not be further described.

It was the experimenters' impression that *S*s encountered no great ambiguity or other difficulty with the response requirements and, although they considered the dance sequences to be less than inspiring entertainment, they nevertheless were able to "attend" with interest.

C. Procedure: Study II

For the second study the shift was made from a purely observational to a more involving active-participation *S* task. The motion picture was replaced with an oscilloscope, the dancing girls with gyrating luminous dots, and to add to the paper-and-pencil evaluative reaction response measures, a control knob was introduced which enabled the *S* actually to take part (as one of the "dots") in the set of timed action patterns.

1. *The Stimuli*

There were six preprogrammed dot sequences, each lasting precisely 30 seconds, each involving two symmetrically-moving otherwise-identical dots, displayed via oscilloscope. The apparatus consisted of a Frieden tape reader, two capacitors which were charged and discharged through switch closures of the reader, and a Tektronix dual-trace oscilloscope which visually displayed

the potential difference of one capacitor on the X-axis and the other on the Y in the form of two point images. The movement of the two "dots" was preprogrammed on the tape. For the participation trials, control of one of the two dots could be switched by the *E* from the tape reader to the *S*'s control stick. Simultaneously the uncontrolled "partner-dot" could be either obliterated (leaving the *S* to perform a solo routine) or allowed to continue to perform (thus creating for the *S* the situation of a *pas de deux*).

The six sequences constituted a 3 × 2 factorial design: three levels for tempo, two for complexity. The two spatial patterns were directly analogous to the middle and high levels of complexity on Study I (termed respectively "core-plus" and "complex"). For the simpler (core-plus) pattern, the two dots, from their starting positions at the top and bottom of the screen, approached the center, circled clockwise, then counterclockwise, and finished by retreating to their initial top and bottom positions. For the complex pattern, between the clockwise and the counterclockwise motions, the dots additionally closed to the center and "merged" there momentarily.

As for tempi, the three employed were this time all constant. They were slow (the pattern traced out once), medium (the pattern twice), and fast (the pattern three times).

2. *Subjects and Administration*

The *S* individually viewed, participated, and responded to the six dot sequences. In all, there were 16 *S*s—eight male and eight female—all undergraduate students comparable in every respect (including time spent and money earned) to the *S*s in Study I.

For one-half of the *S*s, evaluative reactions were obtained before and for the other half they were obtained after the *S*s had "participated"—under both solo and duet conditions—by controlling mechanically the motions of one of the dots in the sequences.[3] When rating and when participating, the *S* first observed, then immediately reacted to a sequence, next proceeded to observe a second sequence, etc. The orderings of the sequences within condition were random but with the restriction that at least one of each tempo and one of each pattern should occur in each half.

3. *The Response*

With the exceptions of the emotion-word checklist and the postmovie questionnaire, which were not included here, the response measures obtained from the *S*s were identical with those of Study I.

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[3] Unfortunately it proved impossible to record as planned—and hence to measure—this participation behavior.

D. Results

Because Study II was intended as, and in fact succeeded reasonably well as, a replication (with some extensions) of Study I, results will be reported simultaneously for the two, with primary emphasis on the findings of the first and larger effort. Accordingly we present in Table 1 the sums (to obtain the appropriate means divide by 28, the number of *S* per cell) for each dance of Study I on the five major dependent variables: Semantic favorability,

TABLE 1
Summed Scores for Study I
(N = 28 per cell)

Item	Pattern	Slow	Tempo Decreasing	Tempo Increasing	Fast
Semantic favorability	Core	489	655	594	636
	Core Plus	581	650	672	711
	Complex	548	657	622	657
Adjective favorability	Core	53	86	86	65
	Core Plus	58	78	101	94
	Complex	54	92	77	77
Time passed quickly	Core	15	29	36	43
	Core Plus	25	32	40	45
	Complex	18	32	32	36
Dancers hurried	Core	3	27	31	49
	Core Plus	20	24	36	55
	Complex	16	26	29	37
Sequence was complex	Core	11	18	14	12
	Core Plus	13	18	19	18
	Complex	18	29	26	29

Adjective favorability, Perception of time passing, Apparent dancer/dot tempo, Apparent pattern complexity. It should be noted that the arrangement of the levels for the Study I tempo factor is necessarily arbitrary; there are logically several possible orderings.

For each of the five dependent variables, two analyses of variance of the means for Study I were performed. The first tested for Tempo, Complexity, and Tempo × Complexity interaction plus Order of presentation and interactions between this factor and the main two. The second analysis checked for trial effects, testing "Trial" (four levels, each the sum of three dances) and the interaction Trial × Order. Since within "trials" each Order was viewing different films, the latter interaction would be expected to be significant (if it is assumed that the experimental variables in fact did vary); nevertheless the main effect here—"Trial"—is meaningful because across orders

the sum on each "trial" is the sum of the 12 different films. The results of these two major analyses are presented in schematic form in Table 2.

Apparently the factors of Trial and Order of presentation were of no consequence; the few stable findings do not fall into any consistent pattern. Further, the one significant Tempo × Complexity interaction (for "apparent tempo") appears merely to reflect a slight exaggeration under the simplest pattern of the influence of the slow tempo. Thus we need consider but two "independent"—i.e., noninteracting—factors: Tempo and Complexity.

The reactions of *S*s to the spatial variations (Complexity) in the dances

TABLE 2
STATISTICALLY SUPPORTED FINDINGS FOR STUDY I
(F values)

	Dependent variable				
	Favorability		Time	Apparent	
Effect	Semantic	Adjective	passing	Tempo	Complexity
Tempo	10.67**	10.55**	19.26**	78.18**	3.97*
Complexity	5.64**	2.03	5.93**	13.23**	11.17**
T × C	†	1.64	†	5.26**	†
Order	2.94	1.60	1.97	3.42*	1.83
T × O	1.08	†	†	†	1.13
C × O	1.80	2.86*	2.21	6.68**	†
T × C × O	†	†	1.15	1.90*	1.60
Trial	†	†	1.22	†	1.65
Trial × Order	1.53	2.92**	5.02**	11.13**	3.91**

* $p < .05$.
** $p < .01$.
† F value < 1.00.

seem fairly straightforward. On both favorability measures (though not significantly so for the adjectives' score), *S*s showed a pronounced preference for the middle (or Core Plus) pattern, and little or no differentiation between the other two.[4] In terms of individual items (see Table 3) Core Plus was particularly noted on the semantic differential as the most sharp, good, hot, happy, strong, and active; and for each of the adjectives it ranked first, except for "soothing" which does not "scale" (and about which more later). On the Time measures, again the middle pattern was singled out: time passed most quickly and the dancers seemed to hurry most during the Core Plus sequences; there were no differences between the other two. Despite this preference for the middle-level pattern, however, *S*s did recognize and order correctly (i.e.,

[4] Further partitioning of the variance in this and following cases supports the given interpretations throughout.

in agreement with the experimenters' intentions) the relative complexity of the three patterns.

Our second, actually prime, variable, Tempo, is not so simple as the Complexity variable; much the stronger of the two (it consistently explains a larger share of the variance), its effects are less easily comprehended. For the two favorability scores, the Slow tempo was singled out and rejected ($p < .01$, Semantic and Adjectives). By item, Slow ranked last on eight of the nine

TABLE 3
SUMS FOR INDIVIDUAL FAVORABILITY ITEMS: STUDY I

	Factor						
	Tempo				Pattern		
Items	Slow	Decr.	Incr.	Fast	Core	Core Pl.	Complex.
Semantic							
valuable	164	196	175	169	226	235	243
deep	159	197	174	161	226	230	235
sharp	135	189	171	192	229	232	226
good	192	217	197	206	254	286	272
wide	217	226	212	225	272	302	306
hot	185	210	202	214	261	290	260
happy	200	237	250	268	292	354	309
strong	181	231	224	229	276	304	285
active	185	259	283	340	338	381	348
Adjectives							
pleasing	34	57	50	50	59	69	63
exciting	14	38	49	49	40	59	51
soothing	34	32	23	15	38	34	32
(not) boring	50	71	81	69	86	96	89
interesting	33	58	61	53	67	73	65

Note: Order of items is that in which they were administered to the *Ss*. The opposite (unfavorable) word for each semantic adjective pair was, respectively, worthless, shallow, dull, bad, narrow, cold, sad, weak, passive.

semantic scales, and significantly so on sharp, happy, strong, and active. As for the adjectives, Slow was rated most boring, least interesting, least exciting (all $p < .01$), and least pleasing ($p < .05$). Again, the adjective "soothing" differs: the Slow and the Decreasing tempi were not differentiated and were jointly seen as more soothing ($p < .01$) than the Increasing and the Fast.

With "soothing," then, there clearly occurred a coupling of two of the tempi. For all but this one of the evaluative-descriptive items, there was no tenable pattern aside from the simple differentiation of Slow (see Table 3). The Fast tempo scored as the most sharp, hot, happy, active; Decreasing ranked highest on the remaining five semantic scales. The Increasing tempo scored as least boring and most interesting and tied with Fast as exciting; most "pleasing" went to the Decreasing tempo; and, as noted, it and Slow

were the most soothing. These item orderings were by slight differences, however, and are certainly quite unreliable.

The orderings on the two time questions are, on the other hand, quite reliable ($p < .01$). Time passed most quickly and the dancers seemed to hurry the most for the Fast tempo, next for the Increasing, then the Decreasing, last the Slow. In both cases also a test of the Upbeat (fast and increasing combined) *versus* the Downbeat (slow and decreasing) is significant: Downbeat tempi were perceived, not surprisingly, as the more sluggish.

Finally, from Table 2, it is evident that the different tempi seemed to *S*s to differ in complexity as well. The Upbeat tempi were again paired (identical scores); the Slow was seen as simpler than the Upbeat ($p < .05$); and the Decreasing as a bit more complex. While not significant, this last is of interest in view of the high semantic evaluation placed on the Decreasing tempo.

The analysis of the Study II findings closely parallels that of Study I for the same five dependent variable measures. One analysis of variance was performed, testing for Tempo (slow-medium-fast), Complexity (core-plus and complex), and Tempo $\times$ Complexity interaction, plus the added factors (*a*) Participation Before or After Rating and (*b*) Subject sex.

The statistical results are clear. For each of the five measures, the factor of Tempo showed a significant ordered effect: *S*s preferred fast over medium over slow tempi; and *S*s perceived the time passing more quickly, the dots as more hurried, the sequence as more complex in the same fast $>$ medium $>$ slow ordering ($p < .01$ for all but complexity, where $p < .05$). There was but one significant difference associated with dance pattern; the more complex pattern was accurately seen as the more complex ($p < .01$). There were again, as with Study I, no discernable interactions between Tempo and Complexity.

As to the expected consequences of actually participating in the sequences, no stable differences associated with this factor were reflected in the paper-pencil measures. Nor does sex of *S*s importantly affect these kinds of response: men perceived the sequences as less complex than did women ($p < .05$), but that was all.

One final cluster of data, gathered only for the movie, remains to be reported: the list of "emotion words," eight plus an unspecified, which *S* checked as applicable and from which he circled one per film as most appropriate. Table 4 presents these circled-word frequencies. While obviously nonindependent by column, they are essentially independent by row, and neatly complement the more analytical material. First, as to complexity, Core-Plus reflected most friendship, amusement, and joy; and showed least sorrow, fear, and

anger. As to Tempo, the Downbeat *versus* Upbeat distinction here derives further support. Downbeat tempi reflect friendship (of a lugubrious sort evidently) and sorrow; Upbeat tempi, amusement, joy, anger, and possibly hate. Fear and love plainly do not fall so readily into place.

TABLE 4
STUDY I: EMOTION WORDS
(*N* of times circled as most appropriate)

	Factor							
	Tempo					Complexity		
Item	Slow	Decr.	Incr.	Fast	Total	Core	Core Pl.	Complex.
Friendship	22	21	15	12	70	18	27	25
Amusement	9	14	19	21	63	20	26	17
Sorrow	19	8	5	1	33	15	6	12
Joy	4	4	8	10	26	8	13	5
Fear	1	10	5	8	24	10	6	8
Anger	4	1	7	5	17	5	4	8
Love	0	6	3	1	10	5	3	2
Hate	0	0	3	2	5	1	2	2

E. DISCUSSION

Results demonstrate that for the simple dance sequences employed in Study I there were pronounced and consistent affective reactions to both content and pace, with stronger effects due to the latter variable. The general trend is toward a more positive favorable response to sequences of medium complexity and of more rapid and/or changing tempo. As for cognitive reactions, there was awareness of the intended complexity dimension, and *S* responses to the two "time" questions are consistent with a comprehension of the temporal differences among the stimuli. Examination of the open-end postmovie questionnaire makes plain, however, that perception of tempo was impaired. Asked "How many different tempos (paces, rates, beats) were there? Characterize them," the *S*s were without exception unable correctly to say. Despite the fact that they responded differentially to four tempi—two constant, two changing—13 *S*s observed (i.e., were aware of observing) three constant tempi: slow, medium, fast; five saw four; two saw two; and two saw five. Of the six *S*s who did note that tempo was not always constant within a dance (responses scored with lenience), none correctly identified the changes which took place. Specifically, for these six *S*s: two reported "four tempos: slow, medium, fast, and a decreasing"; three merely stated "sometimes it changed" and, of these, two reported three tempi and one reported two. One lone *S* noted "three tempos: slow, increasing, decreasing"; thereby becoming unique as the only identifier of the increasing tempo.

This apparent cognitive blindness to what were objectively large temporal differences is especially surprising; since the 28 *S*s of Study I were—as they described themselves in the postmovie questionnaire—a group who brought to the experimental session special knowledge (21 having had music, dance, and/or art training), exceptional involvement (17 were currently active performers in one or more of the arts), and heightened interest (all reporting frequent theater, concert, and/or art museum attendance) in such things as the dance—and patterns, and tempi. These *S*s clearly constitute a sample quite biased in the direction of Fine Arts, a fact which obviously also limits the generalizability of all the reported reactions. The Study II *S*s similarly would reflect this "distortion," since they were obtained from the same population.

The differences between the two experiments were many: a change of viewing situation from the 16mm movie projection to the small luminescent oscilloscope screen and the intrusion of a participation task, the substitution of two dots for four girls, the change from 12 one-minute to six 30-second sequences, the drop from three to two patterns and from four to three (also from changing to constant) speeds, the inclusion of both sexes among the *S*s. Nevertheless, again the tempo preference was pronounced; and *S*s recognized, while they did not preferentially differentiate, levels-of-complexity among the sequences.

What of the factor of participation? In such exploratory work as the present, it seems appropriate to consider a trend apparent in the data of the semantic differential, the five-adjective score, and the complexity question. In each of these instances ($.05 < p < .10$ for the first and third), while there is no difference in the mean scores for women participating before as compared to after rating, the male *S*s' evaluative reactions appear to have been adversely affected by prior participation in the sequence.

There is a temptation to proceed immediately from the main reported result, the pronounced preference for faster tempi, to conclude that we have here a reflection of the high value placed on speed and the rapid-pacing of events in our society (the quick-step culture). Concomitantly, there is the temptation to be reductionist, to interpret the preference for the Upbeat as reflecting biological-rhythm type responses: e.g., slow and/or slowing sequences "mean" death and decay (see, for example, the work of Michotte (11) and Johansson (6)). A more cautious course would recommend more research, employing patterns rationally devised and more widely disparate in order primarily to search out the Tempo $\times$ Complexity interactions which one is intuitively certain must exist. In this connection one must acknowledge the problem posed by the fact that complexity and tempo are necessarily confounded somewhat

when length of sequence is held constant: to "fill" the interval, the fewer subroutines of the simpler patterns must be repeated more times. A major requirement remains the achievement of measurable *participation* procedures such that answers to, or at least insights into, the behavioral questions of learning and functioning in temporally ordered social worlds could be obtained.

F. Summary

Two groups of college students were exposed to two sets of standardized stimuli which were alike in certain temporal and spatial differentiations. A series of cognitive-affective questions were asked of these *S*s concerning their recognition of the critical temporal relations governing the interperson (Study I) and interlight (Study II) activities which they viewed and concerning their personal emotional reactions to these relations and activities. The most noteworthy outcome of this procedure was the consistent strong simple finding of agreement among *S*s that the faster people danced or dots jumped about, the better the viewer liked it and the more favorably he evaluated it.

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CROSS-CULTURAL NOTES

Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator.

The Journal of Social Psychology, 1969, **79**, 135-137.

EIDETIC IMAGES AMONG THE BORORO OF BRAZIL* [1]

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Eidetic images are defined as "visual images persisting after stimulation, relatively accurate in detail, colored positively, and capable of being scanned."[2] It has been proposed that eidetic imagery may be one of the ways of storing information in nonliterate societies which later disappears with the introduction of writing,[3] but investigation of the phenomenon in five different African societies suggests that other, unknown factors probably account for the presence or the absence of the phenomenon.[4]

An opportunity presented itself during field work among the Bororo of Brazil in 1965-1967 to test another cultural group and to determine whether eidetic imagery is associated negatively with acculturation. The Bororo are a matrilineal people living in the western part of Mato Grosso, Brazil, and are now threatened with extinction. They are fishermen, hunters, and they also practice shifting agriculture.

Two groups of Bororo were tested. The unacculturated one was in the village of Pobojari: the 39 subjects constituted 87 percent of the total popula-

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[3] Doob, L. W. Eidetic images among the Ibo. *Ethnology*, 1964, **3**, 357-363.

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tion between the ages of 7 and 65 (five female children, 16 female adults, and 18 male adults). The relatively acculturated group was tested in the Catholic Mission of Meruri: of the 33 subjects, 10 females and nine males were children and constituted the entire child population between the ages of 7 and 15, the eight female and the six male adults were randomly selected from among the workers at the Mission. Mean schooling of this group was 2.0 years.

The procedure followed that of the Habers[5] and Doob,[6] but five different pictures were utilized: after preliminary tests of negative after-images, two black-and-white silhouettes and three colored drawings depicting scenes of Indian life were each exposed for 30 seconds, after which the subject reported what he "saw" on the screen. Portuguese was the language of communication, except for a few informants who had difficulty understanding the task; but replies could also be given in Bororo.

The protocols for each picture were classified as either E— or zero. The category E— signified that the subject had scanned an image and had reported positive colors, but the image lasted too short a time to be described fully. That of zero signified that the informant reported only a negative after-image or no image at all. A third category, that of E (a full description of the image on the blank screen after scanning and reporting positive colors), was not utilized because not a single informant produced a report that would satisfy these criteria.

The E— images usually disappeared within 15 seconds and, hence, could not be fully described. Instead the informant would spend a few seconds expressing surprise and commenting on the image; then he would move his eyes from the screen, look at the investigator, and say, "It is finished."

Each subject was classified as Positive if he reported two or more E—'s, Negative if only one or zero. All of the 33 informants in the acculturated Mission group and all except seven of the 39 in the unacculturated village group fall in the Negative category. The villagers in the Positive category were all females, of whom two were children. This difference between the sexes in the village is highly significant (chi square corrected for continuity 5.22, $p < .05$).

This investigation uncovered some slight evidence favoring the hypothesis that eidetic imagery may be associated with nonliteracy or nonacculturation. It is not clear, however, why the phenomenon occurred among women and not among men in the village group. The brevity and fragmentary character of the

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[5] See footnote 2.
[6] See footnote 3.

imagery seems to resemble that noted by Doob in a sample of Masai in Kenya[7] and also, as among the Africans, these Indians seemed surprised when they reported seeing the image on the blank screen. In passing it should be noted that for no apparent reason the Mission group was anxious during the administration of the test. Our usual explanation did not reassure them and they kept asking for the *real* reason: "Are you not measuring our vision; is this a way to find out who is going to die?" Witchcraft was also suspected; and a woman complained that the test made her eyes swell and her head ache.

Two samples, one relatively unacculturated and the other relatively acculturated, of Bororo males and females were tested for eidetic imagery. The imagery in clear form was found to be totally absent. Those possessing it in a weaker form were all females in the less acculturated group.

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[7] See footnote 4.

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CONTENT DIFFERENCES ON WORD LISTING BY AMERICAN, DUTCH, AND INDIAN ADOLESCENTS*

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In the Word-Naming technique the subject merely lists the first 25 words that come to mind. For this study we assumed that there was a hierarchical structuring of verbal repertoire related to the salience, recency, and frequency of experiential events within the cultural context. The basic hypothesis was that word emission would reflect cultural differences in cognitive content.

Three small towns were selected, matched roughly for size of ninth-grade school population, and for isolation from metropolitan areas: Palwal, in northern India; Enkhuizen, in the Netherlands; and North Bend, in Oregon, U.S.A. Structured samples of 48 ninth graders, matched for sex and level of father's occupation, were selected from among 200 in each community. The Word-Naming test was administered individually as part of an interview. Fourteen content categories related to a person's daily activities and environment were developed: edibles, people, nature, animals, school, mechanical objects, play, abstractions and descriptions, building parts, personal, place, action, time and miscellaneous.[1] The median percentage agreement for content categories between pairs of raters was 93.5. Chi-square analyses were used to test for differences in content category usage. Special additional samples were used for test-retest data. The rank difference correlations were .96 for the Lebanon, Oregon, group and .70 for the Bareilly, India, group (24 boys and 24 girls in each sample). Thus the relative importance of certain content categories was maintained to a high degree over time.

There were several intriguing findings which appear to lend support to our hypothesis that situational and cultural activities and habits may be reflected in frequency of word emission. Indian (I) *S*s emitted significantly more references to EDIBLES than either Dutch (D) or American (A) *S*s, possibly reflecting dietary circumstances or the ritualistic importance of food in India ($I > D, A$, with the use of the .05 significance level). American *S*s list more

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[1] Write to the authors for a more detailed report, including definitions of categories and description of data analysis and results.

references to SCHOOL, PLAY, and ACTION (A > D, I), which is consistent with the differential emphasis on education and leisure time activities in these cultures. American and Indian *S*s emitted more references to PEOPLE and ABSTRACT words than the Dutch (A, I > D). In references to people, the Dutch emphasized occupational types; and the Americans, their peer group. The Dutch seemed most sensitized to the concrete immediate environment, as reflected in references to BUILDING PARTS (D > I > A). The Dutch and Americans gave the most references to bodily parts and accoutrements, or PERSONAL items (D, A > I). The Dutch and Americans emitted more references to TIME than the Indians (D, A > I), probably reflecting the differing emphases on keeping appointments and the physical presence of time-pieces.

The Word-Naming technique has several apparent assets. It is easy to administer, and is not time consuming. Test-retest reliability of predominance of content categories appears to be high. Many findings are consistent with well-known cultural facts, and offer consensual validation of findings and conclusions from other research. Finally, the test may have most utility as a probing device for suggesting areas of important concern to be studied in other ways.

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A COMPARISON OF FOUR INDIAN POLITICAL GROUPS ON A MEASURE OF AUTHORITARIANISM* [1]

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The concept of authoritarian personality has been widely studied in relation to political beliefs and attitudes. Coulter[3] found the English Fascists scoring highest on the F-scale (5.30), the Communists next to them (3.19), and the "neutrals" lowest (2.50). But Rokeach[4] found that the Communists scored lowest on the F-scale, even lower than the "Liberals." In the present study an attempt has been made to compare the *Indian Communists* (CPI) and three other political groups on the F-scale. The members of various all-India political parties differ in their social and political attitudes,[5] and are placed at different points of a rightist-leftist continuum, with the *Swatantry* and *Jana Sangh* (JS) at the extreme right, the two *Communist* parties at the extreme left, and the other parties like the *Congress,* the *Praja Socialist Party* (PSP), and the *Sanyukta Socialist Party* (SSP) falling in between the two extremes.

From an original sample of 300, randomly drawn from two districts in Bihar, 160 subjects were selected, 40 each belonging to the following four political parties: the CPI, the Congress, the JS, and the PSP. The four groups were made comparable in age, education, and duration of party membership. The subjects were all male with the mean age of the sample being 38.04 years, education 14.20 years, and the duration of party membership 12.34 years. A Hindi version of California F-scale was administered individually to all the 160 subjects belonging to the four political groups.

On ideological grounds it was expected that the JS and CPI groups would score significantly higher on the F-scale than the remaining two groups. But

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[2] The author expresses his sincere thanks to Mr. S. C. Sinha for his help in data collection.

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the results showed that although the JS members scored highest (5.59) on the F-scale, the CPI scored lowest (4.39). The Congress group scored (5.41), slightly lower than the JS group, and the PSP next to it (5.04). The difference between the mean F-scores of the JS and the CPI was found to be highly significant ($t = 10.00$, $p < .01$), and so are the differences in the F-scores of the CPI and the PSP ($t = 4.64$, $p < .01$); the CPI and the Congress ($t = 6.80$, $p < .01$); as well as the JS and the PSP ($t = 4.23$, $p < .01$). But the JS members did not differ significantly from the Congress members ($t = 1.20$, $p > .05$), nor did the Congress members differ substantially from the PSP members ($t = 2.17$, $p > .05$) on the F-scale.

The highest F-score obtained by a rightist group like JS and the lowest by the CPI lend support to Rokeach who found F-scale as a measure of "right" authoritarianism and the Communists as least authoritarian. The *SD*s in the CPI (5.4) and JS groups are also relatively low, which indicates little intra-group variations and greater impact of political ideology on these "extreme" political groups. As far as the Congress and PSP are concerned, their F-scores justify their "middle of the road" positions, and the insignificant difference between the two group means is also understandable. But the high mean F-score (5.41) of the Congress group, almost as high as that of the JS group (5.59), may be accounted as due to the lesser impact of party ideology on its members, which is reflected in high group *SD* (.81).

While comparing the four political groups on the F-scale, one cannot ignore the high mean score (5.11) of the sample, which is quite close to the mean F-score (5.10) of politically "neutral" Indian college students.[6] Such high scores on the F-scale in tradition oriented and authoritarian Indian culture[7] may be taken as an evidence for the validity of the scale.

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REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting tabular material from ASIS National Auxiliary Publications Service.

The Journal of Social Psychology, 1969, **79**, 143-144.

SKIN COLOR PREFERENCE OF THE NEGRO CHILD*

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EARL OGLETREE

Kenneth Clark has remarked, "As children develop an awareness of racial differences of their racial identities, they also develop an awareness and acceptance of the prevailing social attitudes and values toward race and skin color."[1] To test this statement, Clark and Clark[2] conducted a "doll-test" study which demonstrated that younger Negro children reject their race more often than older Negro children. The majority of six- and seven-year-olds preferred dolls symbolizing the white race to dolls representing the Negro race. They also employed a coloring test to evaluate skin color preferences. There they found that 52 percent of the Negro children refused to color their figures either brown or black. This supported their "doll test" findings in which 60 percent of the children rejected the brown dolls.

To test the findings of Clark and Clark that Negro children reject brown as a color, the writer conducted a similar investigation on the skin color preferences of Negro children. The sample was taken from a nonsegregated Detroit elementary school, grades three, four, and five. It included 119 pupils of which 74 (67 percent) were Negro and 45 (33 percent) were white. The pupils were given a skin color preference test in which they were asked to color the two human figures as part of their regular science lesson. They were unaware that the administered paper was a skin color preference test. The analysis of the completed colored pictures revealed: (*a*) 72 percent of the Negro

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1 Clark, K. Prejudice and Your Child. Boston, Mass.: Beacon Press, 1963. Pp. 46-47.

2 Clark, K., & Clark, M. Skin color as a factor in racial identification of Negro preschool children. *J. Soc. Psychol.*, 1940, **11**, 159-169.

pupils colored both figures brown; and (*b*) 75 percent of the white children colored both figures white. The disparity in the findings of the present study and those previously cited is, perhaps, the result of differences in time and the changed sociocultural milieu of 20 to 30 years ago as compared to today.

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PERCEPTUAL ABILITIES OF AFRICAN AND EUROPEAN CHILDREN EDUCATED TOGETHER*

Makerere Institute of Social Research, Kampala, Uganda

EDGAR A. F. BOWDEN

A. INTRODUCTION

According to Cryns (4), quantitative studies of intelligence consistently show an inferior level and a more concrete style of thought among Africans than Europeans. Abiola (1) reports the conclusions of anthropologists that African culture is predominantly nonvisual, while Haward and Roland (5) and Hunkin (8) found that Africans give less accurate representations in the draw-a-man test and are more concerned with outline than with interior detail of the figure. In research on perceptual abilities of Africans, all of the environmental factors have never been fully controlled. Biesheuvel (2), who found European children to be superior in manipulation of spatial relations to Africans of the same age but from segregated schools, doubted whether a fully controlled experiment would ever be possible. Hudson (6) found that education, and maintenance of contact with subjects' cultural origins, both tended to increase ability in pictorial depth perception for Africans, as well as Europeans living in Africa; but he found no significant difference between African and European children (from separate schools) in this ability. He also concluded from other research (7) that personnel selection tests selected those Africans who were more adaptable from traditional to modern ways of life, rather than measured inherent cognitive superiority. Schwitzgebel (11) found that adult Zulus underestimated lengths, areas of circles, and durations of time intervals more than Dutch adults, and took much longer to detect Gottschald embedded figures; but he attributed the results to differences in environmental conditions and culture. Poole (9) found that urban Hausa children of Northern Nigeria were less accurate in estimation of length and temporal duration than English children in suburban English schools. Robbins *et al.* (10) and Bowden (3) showed that urbanization increases the accuracy of time estimation by Baganda adults of Uganda.

These studies suggest that (*a*) research which fails to control for environ-

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mental and cultural factors generally shows Europeans superior to Africans on most cognitive tasks; (*b*) controlling fully for these factors is extremely difficult and has not so far been achieved; (*c*) much of the research on perceptual abilities depends on the subjects' familiarity with conventional units of spatio-temporal measurement, of which African culture generally provides less learning experience than does European; and (*d*) the effect of making the environmental experience of Africans more like that of Europeans is always to reduce any observed differences in perceptual abilities.

The question remains whether there is any residual advantage of Europeans over Africans in perceptual abilities when educational and other environmental factors are matched as closely as possible. The problem is of practical importance because of the need for Africans to acquire technical skills, largely dependent upon such abilities, for the development of their countries' economies.

B. Method

In order to eliminate any advantage that familiarity with conventional units of measurement might confer in the estimation of lengths, areas, and temporal durations, and at the same time broaden the scope of the study beyond merely the comparison of times and lengths, a nine-item test was devised, involving, for each item, the comparison of two slightly differing stimuli with a reference standard. The first eight items, showed in Figure 1, tested discriminative abilities in the following perceptual modes: 1) Conservation of form when divided into parts; 2) Conservation of length; 3) Parallelism; 4) Orthogonality; 5) Conservation of rectangular area; 6) Conservation of form under three-dimensional rotations; 7) Insideness-outsideness; 8) Perception of pattern detail. In each case, the reference standard was the central figure on the test card. The ninth item, Conservation of temporal duration, consisted of three intervals of time presented consecutively, the second being of 60-seconds duration as a reference standard, and either the preceding or following interval being identical to the reference standard, the other being 10 seconds longer.

The subjects' task was to select, in each item, the stimulus which was most like the reference standard. Each subject had a copy of the test card and an answer sheet on which he indicated his choice of the left or right test figure and the first- or last-presented test interval by a check mark in the appropriate square of a ruled table. Subjects were not allowed to touch the card or to make any measurements on it. The only clue to the differences within each item was the slowly repeated instruction to look at lengths, angles, shapes, patterns, and

the ways in which the patterns could be moved around on the card, in imagination, to make them similar to one another.

The test was given to 200 children of ages 9 to 16, median age 13 years 1½ months, in four schools in Nairobi, the capital city of Kenya. The schools

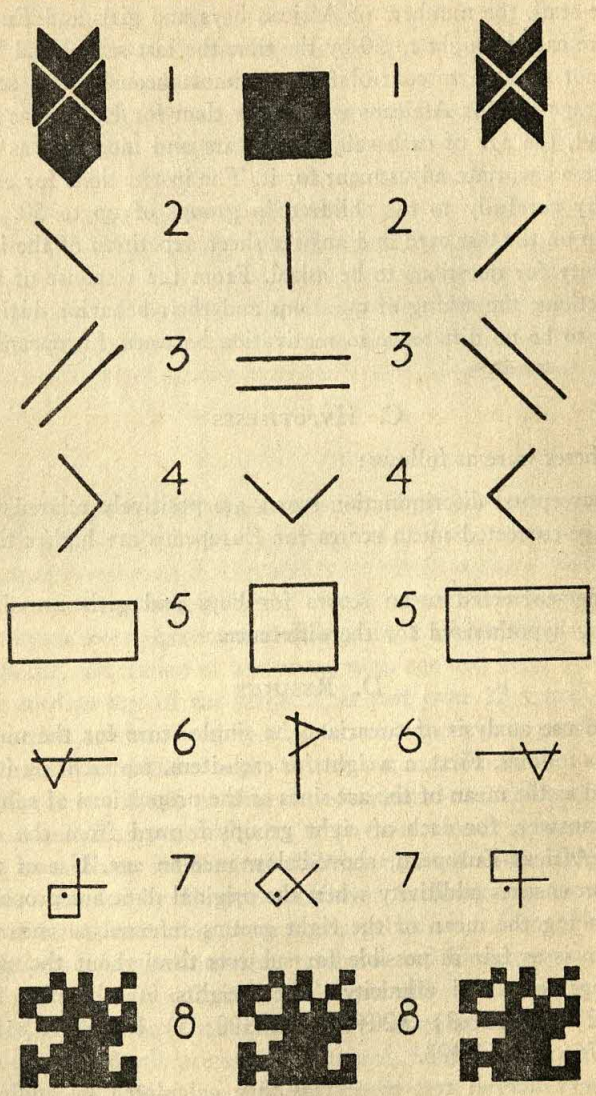

FIGURE 1
PERCEPTUAL ABILITIES TEST CARD, ACTUAL SIZE

were two coeducational primary, one boys' secondary and one girls' secondary, each school being completely racially integrated. Although it was generally impracticable to test exactly equal numbers of African and European children in each school, because of the administrative inconvenience this would have caused to the staff, the numbers of African boys and girls and European boys and girls were each brought to 50 by the time the last school had been visited. It was also not possible to control for age simultaneously with school grade, since the average age for Africans was higher than for Europeans in the same grade. Instead, the age of each subject in years and months was recorded in order to make a covariate adjustment for it. The instructions for the test were explained very carefully to the children in groups of up to 50, with visual demonstration on the test card and answer sheet, repetition of the instructions, and opportunity for questions to be asked. From the response of the subjects to the instructions, the asking of questions and their behavior during the test, there seemed to be no difference in motivation between Europeans and Africans.

C. Hypotheses

The hypotheses were as follows:

1. That perceptual discrimination scores are positively related to age.
2. That age-corrected mean scores for Europeans are higher than for Africans.
3. That age-corrected mean scores for boys and girls are different, no direction being hypothesized for the difference.

D. Results

In order to use analysis of covariance, a single score for the nine-item test was formed as follows. First, a weight for each item, representing its difficulty, was calculated as the mean of the arc-sines of the proportions of subjects giving an *incorrect* answer, for each of eight groups formed from the dichotomies male-female, African-European, above-below median age. Use of the arc-sine transformation ensures additivity when the original data are proportions (12, pp. 221). Taking the mean of the eight groups referred to ensures that the scoring system is as fair as possible for subjects throughout the sample, irrespective of age, sex, and ethnicity. The weights for the nine items were 1) 1.8778; 2) 1.8310; 3) .6204; 4) 1.2390; 5) 1.7459; 6) 1.3186; 7) .7995; 8) .3766; 9) 1.0493.

Each subject's overall test score was then calculated by adding together the weights of the items he or she answered correctly. The mean test scores

for the main experimental groups (European boys, African boys, European girls, African girls) corrected for within-group age regression were 6.375, 6.207, 5.893, 5.322. The mean ages in months were 154.82, 157.98, 151.72, 156.68. The within-group correlations between age and test score were .2795, .1626, .0378, .0133; and the pooled within-group correlation .1367 ($p < .03$, one-tailed because the direction was specified in Hypothesis 1).

The effect of age on test score was eliminated and Hypotheses 2 and 3 were tested by means of analysis of covariance, with the following results: Error sums of squares, 3.20 (*df* 195); $F_{interaction}$ .80; F_{ethnic} 2.32; F_{sex} 7.12. Each of the F ratios was associated with one degree of freedom in the numerator. The interaction effect was not significant. The slight excess in mean test scores of European over African subjects was associated with a one-tailed probability (because the direction was specified in Hypothesis 2) of .06. The superiority of male over female subjects was associated with a two-tailed probability (because the direction was not specified in Hypothesis 3) of less than .01.

E. Conclusions

The results are in line with all three of the hypotheses on which the study was based, though for the main hypothesis that Europeans are superior to Africans in perceptual discriminative ability the result is just outside the usually accepted .05 percent probability level. The difference between boys and girls appears to be much more significant than any slight ethnic difference. The low, though significant, correlation of test scores with age may have been due to the fact that the median age of the subjects, at just over 13 years, would place a large proportion of them within adolescence, where it is possible that perceptual discriminative abilities begin to reach a maximum.

In this study, it would appear that the educational and cultural backgrounds of the African and European subjects were more closely comparable than in any previous research on intellectual abilities reported in the literature. Integrated schools attended by European children in Kenya are on a fee-paying basis, so the Africans attending them are largely drawn from the new middle class, their fathers being businessmen, teachers, and Government officials. But educational, and especially cultural, differences still remain. Some of the African pupils are likely to have transferred to their present school, where European educational standards are still maintained, from less favored local African schools. Culturally, the new African middle-class environment can hardly be expected as yet to confer all the advantages of intellectual stimulation that a European middle-class child may enjoy. Thus, any residual difference in the

type of intellectual ability measured in the present study, a difference which in any case was of submarginal statistical significance, is most likely to be attributable to the remaining educational and cultural advantages of the European subjects over their African counterparts.

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ATTITUDE SIMILARITY-DISSIMILARITY AND ATTRACTION: GENERALITY BEYOND THE COLLEGE SOPHOMORE* [1]

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A. INTRODUCTION

It is a truism that personality and social psychologists tend to build laws of behavior based on the responses of American college sophomores. The generality of such laws is necessarily open to question unless their applicability to quite different population samples can be shown.

The empirical law describing attraction toward a stranger as a positive linear function of the proportion of the stranger's attitudes which are similar to those of the subject is well established in samples of undergraduate students (e.g., 2, 4). The same empirical relationship has been found among elementary and secondary school children (3). There is also evidence that female clerical employees of the Bell Telephone Laboratories respond differentially to two points along the similarity continuum (6). Though response to attitude similarity-dissimilarity has thus been clearly shown not to be limited to college students, one could nevertheless argue that the investigations to date have been limited to samples consisting of relatively young, relatively well-adjusted individuals representing predominantly a middle-class culture. It is quite con-

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ceivable that the tendency to respond positively to attitude similarity and negatively to attitude dissimilarity constitutes a special characteristic of the relatively narrow samples which have been studied. If so, the findings would be of less interest as general behavioral phenomena than if they are found to be applicable to a broader segment of the population. The present investigation consists, in part, of an attempt to test the generality of the attitude-attraction relationship among different groups within American society. It is hypothesized that the linear relationship established in student samples between attitude similarity-dissimilarity and attraction is also characteristic of nonstudent samples.

This research is also designed to provide evidence relevant to a quite different problem. In a series of recent investigations (1, 5), the effect of attitudinal material on attraction has been interpreted in terms of effectance motivation. In these studies, effectance is defined as a motive to cope effectively with the environment by means of accurate perception, logical thought processes, consistency, correct interpretation of reality, etc. The similar attitudes of others serve to satisfy this motive by providing consensual validation, while the dissimilar attitudes of others frustrate this motive via consensual invalidation. It has been found that the steepness of the attitude-attraction function increases as the subject's motivational level increases. When effectance arousal is extremely high, however, there is a reverse effect, and the slope is actually less steep and the Y intercept higher than in a neutral situation. This latter effect has been interpreted in terms of the disorienting and dedifferentiating qualities of high effectance arousal, a condition also characteristic of schizophrenia. If this formulation is correct, it would follow that the relationship between attitude similarity-dissimilarity and attraction among schizophrenic subjects would resemble that of the high arousal experimental subjects in the previous research. It is hypothesized, therefore, that the slope of the attitude-attraction function is less and the Y intercept higher for schizophrenics than for comparable nonschizophrenic individuals.

B. Experiment I

1. *Method*

The subjects consisted of three distinct groups of male hospital patients who could be characterized as older and more poorly educated individuals representing a lower socioeconomic level than have previously been utilized in the experimental study of attraction. Specifically, there were 13 surgical patients at the John Sealy Hospital of the University of Texas Medical Branch in Galveston, 29 alcoholic patients at the Austin State Hospital, and

42 schizophrenic patients at the Austin State Hospital. Ages ranged from 15 to 71 with medians of 23, 43, and 45. Educational levels ranged from the third grade through college graduation with a high school diploma as the median. Almost all of the subjects were employed in either skilled or unskilled laboring jobs with a scattering of other occupational groups, such as farmers and white collar workers. Approximately one quarter of the subjects consisted of Negroes.

In small groups, each subject was first given an eight-item attitude scale with attitudes expressed on six-point rating scales with respect to smoking, reading books and magazines, strict rules for children, studying, religion, brothers and sisters, school integration, and comic books. Immediately afterward, while the subjects were engaged in a neutral activity, a bogus attitude scale was prepared for each subject, such that the responses were in agreement with their own on none, four, or all eight of the items. Each subject received one of these bogus scales and was told that it contained the responses of another patient in the same hospital. His task was to examine this scale and see how much he could learn about the other person by reading his responses. Judgments were made on a special shortened form of the Interpersonal Judgment Scale (4) which contained four seven-point items dealing with stranger's intelligence, morality, likeability, and desirability as a work partner. Responses to the last two items are summed to yield the measure of attraction which ranges from 2 to 14.

2. *Results*

The means and standard deviations of the attraction responses of the three groups of subjects to the three levels of attitude similarity are shown in Table 1. The apparent effect of the attitude similarity variable, as well as differences among the groups, is confirmed by the analysis of variance, summarized in

TABLE 1
MEANS AND STANDARD DEVIATIONS OF ATTRACTION RESPONSES OF SURGICAL, ALCOHOLIC, AND SCHIZOPHRENIC PATIENTS TO THREE LEVELS OF ATTITUDE SIMILARITY

	Proportion of similar attitudes							
	.00		.50		1.00		Total	
Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Surgical patients	5.00	2.35	7.60	.80	10.75	1.48	7.77	2.78
Alcoholic patients	6.10	1.51	7.56	3.06	10.00	2.00	7.90	2.78
Schizophrenic patients	8.35	2.22	9.79	2.73	11.64	1.44	9.93	2.58
Total	7.07	2.42	8.68	2.84	10.93	1.83		

TABLE 2
SUMMARY OF ANALYSIS OF VARIANCE OF ATTRACTION RESPONSES OF SURGICAL, ALCOHOLIC, AND SCHIZOPHRENIC PATIENTS TO THREE LEVELS OF ATTITUDE SIMILARITY

Source	*df*	*MS*	*F*
Attitude similarity	2	105.10	20.53***
Patient group	2	45.12	8.81***
Interaction	4	2.43	.47
Within	75	5.12	

*** $p < .001$.

Table 2. In addition, trend analysis indicated a highly significant linear trend ($F = 41.74$, $df = 1/75$, $p < .001$) with a nonsignificant quadratic component.

If the hypothesis concerning a differential function for the schizophrenic subjects compared to the other two groups were accurate, a significant interaction effect would be expected. In neither the analysis of variance nor the trend analysis did the interaction even approach significance. There is however, another means of testing this hypothesis. The obtained responses of each group can be compared to the responses predicted on the basis of a formula derived on college students in a comparable experimental situation: $Y = 6.64X + 5.06$ (2). Goodness of fit analysis indicated a significant difference between the predicted and obtained responses for the schizophrenic subjects ($F = 11.60$, $df = 3/39$, $p < .001$), but the responses of the surgical patients ($F = .77$, $df = 3/10$) and the alcoholic patients ($F = 2.95$, $df = 3/26$) did not differ significantly from the predicted values. With these conflicting lines of evidence, it may be seen that evidence supporting the hypothesized slope and Y intercept differences for schizophrenics *versus* nonschizophrenics is somewhat equivocal.

C. EXPERIMENT II

1. *Method*

In a population as yet relatively untapped by behavioral research, the generality of the attitude-attraction function was also explored among members of the Job Corps. The subjects were 82 trainees at the Gary Job Corps Training Center in San Marcos, Texas. In age they ranged from 16 to 22 (Median = 18.5) and in educational attainment from the sixth to the twelfth grade (median = ninth). Approximately 44 percent of the sample consisted of Anglo-Americans, 36 percent of Negroes, and 15 percent of Latin-Americans and American Indians.

The procedure differed slightly from that of Experiment I. The attitude scale consisted of 12 items arranged in six-point scales dealing with smoking,

baseball *versus* football, strict punishment of children, gardening, men *versus* women adjusting to pressure, drinking, necking and petting, sex relations before marriage, money, reading books, father *versus* mother punishing children, and divorce. Immediately after taking the scale, the subjects were given the interpersonal judgment instructions and another attitude scale, purportedly filled out by another job corpsman. Actually, each subject received one of two random "standard stranger" scales filled out by the experimenters. Judgments about the stranger were made on the Interpersonal Judgment Scale.

2. *Results*

The number of similar attitudes shared by subject and stranger could range from zero to 12. The actual range of similarity was from 2 to 10.

To facilitate analysis, the subjects were divided into three levels of attitude similarity (.17 to .25, .33 to .50, and .58 to .83), and a simple one-way analysis of variance was carried out. As expected, proportion of similar attitudes was found to exert a significant influence on attraction responses ($F = 5.08$, $df = 2/79$, $p < .01$).

A comparison was made of the responses of these subjects and the responses predicted by the Byrne-Clore formula. Goodness of fit analysis indicated the difference to be nonsignificant ($F = 2.02$, $df = 8/74$, *ns*). Once again, the formula derived in a sample of college students was found to predict the attraction responses of a quite different sample of subjects.

Because this particular sample contained relatively large proportions of minority group members, it was decided to explore possible ethnic differences in the attitude-attraction function. A stimulus-response correlational analysis was employed. For the total sample, the correlation between proportion of similar attitudes held by the stranger and attraction responses was found to be .27 ($p < .05$). In the ethnic comparison, this correlation was —.07 (*ns*) for the Anglo-Americans, .46 ($p < .02$) for the Negroes, and .34 (*ns*) for the Latin-American and Indian group.

The surprising finding, of course, is that there is no relationship between attitude similarity and attraction for the ethnic group which has furnished the majority of subjects in previous research. It was assumed that some other variable, such as level of educational attainment, must be operating differentially across these three groups of trainees. In support of this possibility, it was found that the Negro trainees had the highest mean educational level (9.88) and the Anglo-Americans the lowest (9.07) of the three groups; this difference was a significant one ($t = 2.22$, $df = 53$, $p < .05$). On the basis of this finding, the sample was rearranged by educational level and ethnic membership

was ignored. As hypothesized, attitude similarity was significantly correlated ($r = .45$, $p < .05$) with attraction among the best educated trainees (tenth to twelfth grades), while the correlation ($r = .13$, *ns*) was not significant among the trainees with the lowest educational attainment (sixth to eighth grades). Since it has previously been found that *children* in the sixth to eighth grades respond to attitude similarity (3), the present findings suggest that the job corps trainees who dropped out of school in the lower grades represent a special group in terms of such factors as intellectual ability, reading skills, etc. While such individuals may not respond to similar and dissimilar attitudes with differential attraction, it seems more likely that they were simply unable to understand the instructions or to read the attitude and attraction scales.

D. Conclusions

The clearest finding is that the linear relationship between proportion of similar attitudes and attraction is a phenomenon generalizable beyond the college student. In samples unlike college undergraduates in age, education, socioeconomic level, intelligence, and adjustment, not only does a linear function hold between the two variables, but the specific responses of the subjects are predictable on the basis of a formula derived on college students. The tendency to make a positive response to a stranger who expresses attitudes similar to one's own and a negative response to one who expresses dissimilar attitudes is obviously relatively general in the population. Such generality should now be further tested cross-culturally, preferably in a non-Western society.

The second proposition, that schizophrenics are functioning at a high level of effectance arousal and hence should make less differentiation between similar and dissimilar strangers than do nonschizophrenics, received only partial support. That is, schizophrenic patients yielded a linear attitude-attraction function which differed significantly from that found with college undergraduates. The divergence between these subjects and students is meaningful, of course, only because the surgical patients, alcoholic patients, and job corpsmen did *not* differ from college students. The consistency across all of the groups except the schizophrenics is shown graphically in Figure 1.

With respect to the job corpsmen with the low educational attainment, their lack of response to attitude similarity-dissimilarity is seen as a function of the inappropriateness of the experimental operations. With experimental manipulations better suited to their abilities, it is hypothesized that the responses of such subjects would not differ from those of the other groups.

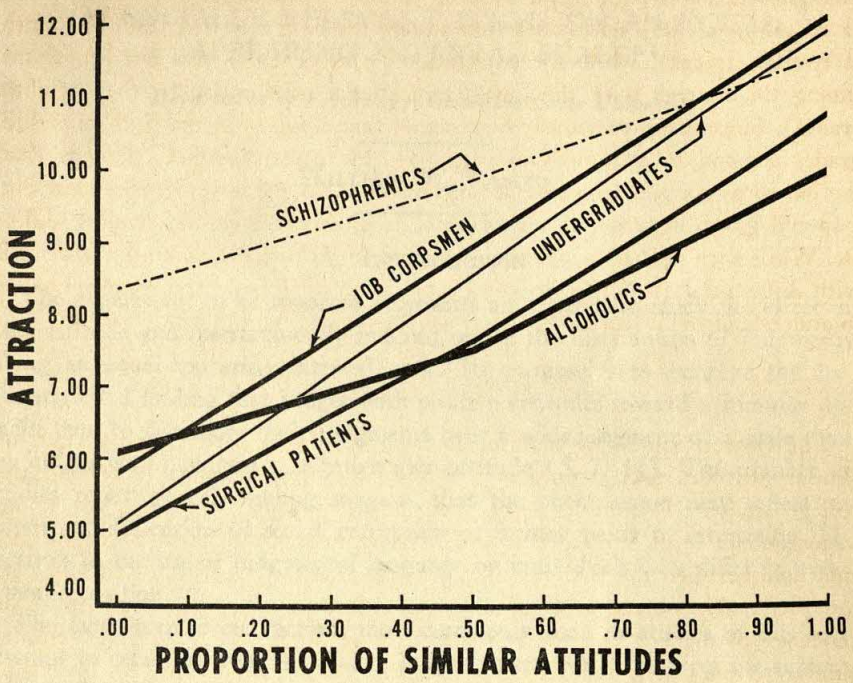

FIGURE 1
ATTRACTION AS A FUNCTION OF PROPORTION OF SIMILAR ATTITUDES AMONG SURGICAL, ALCOHOLIC, AND SCHIZOPHRENIC PATIENTS, JOB CORPS TRAINEES, AND COLLEGE UNDERGRADUATES

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OWN-ATTITUDE AND THE ABERRANT PLACEMENT OF SOCIALLY RELEVANT ITEMS ON AN EQUAL APPEARING INTERVAL SCALE* [1]

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A. INTRODUCTION

The experiment to be reported represents an attempt to study the effect of own-attitude and instructionally induced set on the distribution of judgments along an equal-appearing interval scale. Its purpose is to examine the frequently cited finding that judges with positive attitudes toward a stimulus domain tend to distribute their judgments over a wider segment of a scale than do judges who maintain a negative own-attitude (5, 7, 11). The number of studies reporting this finding suggests that the phenomenon may reflect an important dimension of social perception or it may point to interesting differences in the use of judgmental language by individuals who differ in own-attitude position.

The experimental instructions most commonly used in studies of this sort attempt to establish what is called a judgment set, which requires the subject to formulate his response on the basis of item content and interitem relationships. This judgment set contrasts with an endorsement set under which the subject's responses are based not on interitem comparisons but on a comparison of the stimulus item with the subject's own position regarding the attitude domain. Under an endorsement set the categorical scale becomes a scale of agreement rather than one of magnitude of item content.

Sherif and Hovland (6) and Webb (10) suggest that the maintenance of a judgmental set may prove difficult for the subject, especially under those conditions which employ socially relevant stimuli. If these authors are correct, then one might be led to expect some vacillation from a judgment to an endorsement set during the course of a scaling task. The consequences of set changes would not be identical for positive and negative own-attitude subjects. Consider the subject who maintains a negative attitude toward some minority group. The presentation of an item, the content of which would indicate high

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probability of placement at the negative end of the scale, will generate a response at the lower end of the scale, provided he maintains a judgmental set and reacts to item content. However, if the same item is evaluated with an endorsement set—i.e., employing an agreement scale—the item would in all likelihood be assigned to one of the upper categories.

Violation of set requirements by subjects who maintain favorable own-attitudes will not result in similar displacements. An unfavorable item would, in this instance, be placed at the low end of the scale, regardless of whether the evaluation is made along a scale of favorableness or along a scale of agreement. The subject would either disagree with the item or judge it to reflect negative content.

The results of fluctuations of set would be, therefore, to move the extreme items toward the center of the scale when scale values were computed by averaging over subjects who hold negative own-attitudes. Set fluctuations would not generate the same displacements for the positive own-attitude group. Hence, the difference in the width of the distribution of scale values obtained from positive and negative own-attitude judges can be accounted for merely by assuming that subjects do not consistently maintain the judgmental set that is specified by the experimental instructions, and that fluctuations of set differentially affect scale values obtained from positive and negative own-attitude groups.

In certain respects the present study replicates dimensions of previous studies by Upshaw (7) and Zavalloni and Cook (11), since scales generated by groups differing in own-attitude are analyzed. Primary attention is focused on the number of aberrant judgments produced by subjects who hold positive, neutral, or negative own-attitudes toward the minority group under consideration. An aberrant judgment is defined as a response that arises from an inversion of the categorical scale. Such a judgment occurs whenever an item having a scale value which places it at the upper or lower end of the scale is assigned by an individual judge to a position at the opposite end of the scale. The occurrence of such responses will be interpreted as an index of the violation of the psychological set generated by the instructions that are used to define the experimental task.

If aberrant judgments can be explained in terms of set factors, then it follows that these judgments should reflect the influence of variations in instructional conditions which attempt to structure the relative emphasis placed on the set requirements of the scaling task. Therefore, an attempt is made to manipulate the instructions in order to observe the influence on the number of aberrant judgments generated by groups of judges who differ in own-attitude.

The following hypotheses are tested in the experiment:

1. Those who express negative own-attitudes toward a minority group will produce significantly more aberrant displacements than those subjects who express a positive attitude toward the attitude referent.

2. Instructions which place emphasis on the judgmental set will produce fewer aberrant displacements than instructions which, although informing the subject of this requirement, do not lay emphasis on this dimension of the scaling task.

3. Changes in the number of aberrant placements associated with modifications of the instructions will be focused primarily in the negative own-attitude group; therefore, there will be significant shifts in the number of aberrant judgments for only the negative own-attitude group.

B. Method

The stimulus series presented for judgment consisted of a set of 42 items taken from the Hinckley Scale of Attitudes Towards Negroes (2). A subset of 40 items had been used previously in a study reported by Upshaw (9); these items were selected to form a series of 20 pairs, each pair separated by a half category interval.[2] Two additional items were selected from the central portion of the scale in order to permit a division of the item series into equal thirds.[3]

Items were randomly ordered and printed on 8- × 11-inch pages which were randomly assigned to positions in the judgment booklets. Beneath each statement 11 categories were represented by a series of unlabeled, but equally spaced, Roman numerals.

Three variables defined the dimensions of the factorial arrangement of treatments used in this study. Two levels of set and three levels of own-attitude generated six independent groups of subjects, each of whom rated the 42 items. The three levels of own-attitude were constructed by placing in the anti-Negro group all subjects who scored below 56 on the Likert scale; those subjects scoring between 59 and 62 were placed in the neutral group; and those scoring above 65 were placed in the pro-Negro group. These division points are generally comparable to those employed by Upshaw (7). Judges falling outside these score limits were eliminated from the study, thus leaving 190 subjects to be included in the analysis of the results.

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[2] Information concerning the statements included in this scale may be obtained from Upshaw (9), who has filed a listing of all scaling data with the American Documentation Institute.

[3] Items 37 and 49 in the Upshaw series.

The two instruction conditions were derived from those used by Hovland and Sherif (3). Subjects functioning under one condition received instructions that did not place emphasis on the judgment set requirement of the scaling task. They were told to assign statements to categories which represented levels of social position. Subjects operating under the second condition received instructions that were identical to the first set with the exception that on two occasions they were admonished to judge only the social position reflected by the statement and not the extent that they were willing to endorse the sentiment expressed.

The third variable was also at three levels, and it was constructed by grouping items into three categories—i.e., pro, neutral, and anti—on the basis of scale values assigned by Upshaw (7) to his control condition. The 42 items were grouped into three categories of 14 items each; the pro group consisted of statements with scale values ranging from 10.54 down to 7.59, the neutral group ranged from 7.26 to 4.32, and the negative group included statements with scale values of 4.28 down to 1.08.

The subjects used were 232 white, undergraduate students at Oklahoma State University who were enrolled in a first course in psychology, who volunteered for the experiment, and who were given minor course credit for their participation. Judgments of the Hinckley series were made in small groups ranging in size from 5 to 17. They were immediately followed by the presentation of the Likert Negro Scale (4), which was used to assess own-attitude position of the judges.

The procedure deviated somewhat from that followed in many studies; subjects were asked to circle the category numeral judged most appropriate for an item rather than to sort items into 11 piles. Several studies (1, p. 96) have reported that graphical ratings of this type lead to results quite comparable to those obtained from sorting.

C. Results and Discussion

For each of the six experimental groups, Table 1 presents average scale values computed for each of the three statement categories. Examination of these data reveals that, without exception, average values tend to be farther apart on the scale as one moves from the negative own-attitude through the neutral to the positive own-attitude group. An analysis of variance yielded an F significant at the .01 level for the own-attitude by item category interaction. This F, when viewed together with the data in Table 1, provides statistical confirmation for the previously stated hypothesis that scale values associated with negative own-attitude groups tend to be distributed over a narrower

segment of the scale than those average scale values obtained from positive own-attitude groups.

Examination of the scale values assigned to individual statements indicates good consistency with this analysis of average values. For example, the 14 anti statements were scaled by positive and negative own-attitude groups operating under either high judgment set or standard instructions; therefore 28 pairs of scale values can be compared. On only one occasion did the negative

TABLE 1
MEAN SCALE VALUES

Own attitude	Item position	Instructions	
		High judgment	Low judgment
Negative	Anti	2.84	4.46
	Neutral	5.11	6.00
	Pro	7.45	7.43
Neutral	Anti	2.72	2.81
	Neutral	5.14	6.21
	Pro	7.80	8.54
Positive	Anti	2.12	2.16
	Neutral	5.11	5.18
	Pro	8.78	8.89

own-attitude group place one of the items lower on the scale than the positive own-attitude group. A similar comparison for the pro items reveals that only five of 28 comparisons showed negative own-attitude judges placing an item higher on the scale than did the positive own-attitude group.

The placement of a statement on the scale was considered aberrant whenever an item in the pro statement category was placed in one of the four most unfavorable response categories, and whenever an item in the anti statement group was placed in one of the four most favorable categories. In recording the frequency of this type of judgment, separate tallies were made for the displacement of pro and anti statements. The analysis, therefore, was confined to the judgments that referred to the end groups of statements; the neutral items were not considered.

Table 2 presents the mean number of pro and anti statement inversions observed under each experimental condition. The results of an analysis of variance of these aberrant judgments yielded a significant $F_{.05}$ for differences between instruction conditions, a significant $F_{.025}$ for the instruction condition by direction of displacement interaction, and a significant $F_{.01}$ for the differences between own-attitude positions. Examination of Table 2 indicates that the direction of the differences between own-attitude conditions is consistent with the previously stated hypothesis. With the Student-Newman-Keuls

technique, individual comparisons among the mean number of aberrant judgments associated with each own-attitude main effect reveal that each mean differs significantly—minimum F is at the .05 level—from each of the two remaining means. Therefore, it is concluded that the negative own-attitude group produced significantly more aberrant judgments than the neutral own-attitude group, which, in turn, generated significantly more aberrant judgments than the positive own-attitude group. The F associated with the second order interaction among the three variables was not significant.

TABLE 2
MEAN NUMBER OF ABERRANT JUDGMENTS

Own attitude	Item displaced	Instructions High judgment	Instructions Low judgment
Negative	Anti	2.67	3.24
	Pro	2.10	3.29
Neutral	Anti	2.21	1.37
	Pro	1.35	2.68
Positive	Anti	1.52	1.37
	Pro	.52	1.63

The higher incidence of aberrant judgments observed under the influence of the negative own-attitude condition was not confined to just a few statements in the pro or anti scale positions. The substantial majority of the statements at each end of the scale, 46 out of 56 comparisons, yielded a larger number of aberrant judgments under the negative own-attitude condition than under the positive own-attitude condition.

The relationship between own-attitude and the width of the scale of social judgment may be understood in the light of these findings. Aberrant judgments occurring in both directions on the scale will tend to influence mean scale values associated with pro and anti statements. Scale values assigned to a group of negative statements will be elevated by these aberrant displacements, while under similar influence scale values assigned to the positive statements will tend to be depressed. Therefore, since the number of aberrant judgments increases as one moves from the positive own-attitude condition through the neutral to the negative own-attitude condition, it would be expected that there would be a corresponding reduction in the distance between mean scale values assigned to the groups of statements. Hence, the restrictions in the range of scale values observed in this and several other studies are explainable in terms

of the differential frequency of aberrant judgments observed among the three own-attitude groups.

An experimental hypothesis stated that modifications in instructions would significantly affect the number of aberrant judgments observed only for the negative own-attitude group. Therefore, even though the variance component associated with set by own-attitude interaction was not significant, tests of simple effects were carried out to analyze further the change in aberrant judgment frequency observed as a function of modifications in the instructions. Only one of these three tests is significant. The F associated with the simple effects of instructionally induced set was significant ($p < .01$) for only the negative own-attitude group. It should be pointed out, however, that the F obtained from the positive own-attitude group fell just short of the critical alpha level. Therefore, while bearing this latter trend in mind, it is tentatively concluded that instructionally induced set operates primarily to influence the range of judgments through the negative own-attitude group.

Although a relationship between own-attitude and the incidence of aberrant judgments was predicted, the own-attitude variable was conceived as merely serving a mediating function which determined the differential influence of several conditions of psychological set. Therefore, a difference in the number of aberrant judgments observed between the three own-attitude groups was not attributable to own-attitude alone, or to a higher incidence of set fluctuations in one or the other group, but to the fact that variation in psychological set manifests itself in an increase in the number of extreme item displacements only under conditions of negative own-attitude.

One result warrants comment, and that is the significant interaction between direction of item displacement and set condition. Examination of the simple effects associated with these two dimensions indicated a significant increase in the number of times anti statements were assigned to the pro end of the scale as one moves from a high judgmental set emphasis to a low judgment set emphasis. There was, however, no corresponding significant difference associated with the positive statements when they were presented under the two set conditions. Therefore, it would appear that the negative items were more susceptible to instructional condition.

Finally, a word about the relevance of the results of this study to Thurstone's assumption concerning the independence of equal-appearing and successive interval scales from the influence of the judge's own-attitude. Previously cited research indicates that the unit of the scale is sensitive to own-attitude influences [e.g., (8)]. The present investigation would, on the other hand, suggest that the apparent difference in scale unit reflected not the operation

of own-attitude variables, but the influence of fluctuations of the psychological set that serves as the framework within which the subject generates his judgments. More careful attention to the preparation of instructions used in scaling research would doubtlessly go far in removing certain doubts surrounding the assumptional requirements of these important scaling techniques.

D. Summary

Statements expressing attitudes toward Negroes were scaled by groups of subjects who differed in own-attitude position. In addition, two different sets of instructions were employed: one placed emphasis on the necessity for the subject to maintain a judgmental set, the other did not emphasize this set requirement. The data were analyzed in terms of the number of scale inversions observed under each condition. Results indicated that negative own-attitude subjects distributed judgments over a narrower segment of the scale and produced significantly more inversions than the other two own-attitude groups. The results are interpreted in terms of the differential effect of judgment set on scale values obtained from positive, neutral, and negative own-attitude subjects.

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COGNITIVE DISSONANCE AND PROJECTED HOSTILITY TOWARD OUTGROUPS*

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A. INTRODUCTION

Social scientists have shown an increasing recognition of the multiple and complex motivational states underlying hostile attitudes toward outgroups. This recognition has been manifested primarily in terms of speculative and theoretical arguments which have been verified only occasionally through experimental research. With regard to psychological viewpoints on the antecedents of ethnic prejudice, there has been considerable research in relation to the "displacement" hypothesis (3, 11, 12, 14) and the "belief prejudice" hypothesis (16, 18). However, the role of projection in the development of ethnic attitudes has received little attention in the experimental literature. This neglect is surprising, since projection constitutes the critical explanatory concept in psychodynamic formulations of prejudice (2, 17). Although the influence of generalized ego defensiveness (13) and personal threat (12) upon the development of prejudicial attitudes has been demonstrated, further research regarding the specific role of projection would be appropriate.

The goal of this study is to test the major implications of cognitive dissonance theory (6) for the role of projection in the development of ethnic attitudes. More traditional approaches—i.e., psychoanalytic theory (2)—view projection as an attempt to reduce anxiety and/or guilt which arises from a violation of the standards of the superego. On the other hand, dissonance theory offers a more differentiated picture of projection by highlighting the importance of the individual's self-concept, as well as his superego—what he sees himself as, in addition to what he should be. Dissonance theory maintains that when persons are confronted with information which indicates that they possess undesirable traits or impulses, those high in self-esteem are more likely to experience negative affect and use defensive projection than those who are low in self-esteem (4, 5). Furthermore, dissonance theory suggests

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that a person with high self-esteem will project negative attitudes toward his own reference group (4). In this manner, the person attempts to reduce dissonance by concluding that these traits must be less undesirable if they are possessed by his reference group. The last assumption may be contrasted with the psychoanalytic view (1) that projection is generally aimed at persons who are disliked, considered inferior, and noncomparable to the projector.

Finally, Brehm and Cohen (6) show, by taking into account the commitment or the degree of strong, unambiguous confrontation that is present, how the dissonance approach can allow us to specify when projection upon outgroups and under what conditions projection upon ingroups will occur. We may paraphrase their argument as follows: when a person is strongly confronted with evidence concerning his possession of an undesirable trait, he most likely reduces dissonance by trying to get other people like him into the same boat. On the other hand, when the confrontation is weakened as a result of (*a*) unclear evidence or (*b*) *S*'s denial of possession of the undesirable trait, the individual may dissociate himself from the trait by projecting it or other related negative traits onto an outgroup. It may be noted that this assumption is similar to the analytic hypothesis regarding the role of denial of an unfavorable impulse in the attribution of negative characteristics to outgroups.

If it may be assumed that, particularly for female subjects in America, the possession of hostile impulses represents an undesirable personal attribute, and that for white *S*s Negroes represent an outgroup, whereas whites constitute an ingroup, the following hypotheses may be derived from dissonance theory: (*a*) when strongly confronted with undesirable information regarding hostile feelings, high self-esteem *S*s will project more hostility toward whites than toward Negroes, (*b*) greater projection will occur among high rather than low self-esteem *S*s and, (*c*) denial of the possession of hostile impulses will lead to greater projection upon Negroes than whites.

This study may be compared with Bramel's (4, 5) research which confirmed a cognitive dissonance conceptualization of projection in relation to homosexual impulses; but it also differs from his in several respects. Whereas he employed a high confrontation condition for the purpose of dissonance induction, the present study added a weak confrontation condition in order to test the *S*s' projections in a situation which affords the opportunity to minimize the presence of undesirable information. Also, since the projection of hostility toward outgroups constituted the dependent variable of the present study, *S*s evaluated hostility levels of Negro and white persons subsequent to strong or weak confrontation with evidence regarding their own unconscious hostility. Although confrontation with unconscious hostility is not as personally

threatening for female *S*s as confronting male *S*s with homosexuality, it was our intention to use a manipulation less strong than Bramel's to evaluate the generality of his results. Since it was anticipated that projection might take a more indirect form, attribution of undesirable characteristics other than hostility was evaluated by semantic differential ratings.

B. Method

1. *Subjects*

Initial self-esteem was measured by *S*s' self-ratings on 16 seven-point semantic differential scales loaded on the evaluative factor (15). These scales were administered to 120 female undergraduate students enrolled in introductory psychology courses at Wayne State University. Female subjects were selected because it was assumed that the culturally disapproved nature of hostility was likely to lead to higher levels of dissonance for them than for male subjects. The 40 highest and 40 lowest scorers were randomly assigned to eight experimental conditions based on a $2 \times 2 \times 2$ factorial design with 10 subjects per cell. In addition to self-esteem, the other independent variables were level of confrontation (strong *vs.* weak), and race of the target group (Negro *vs.* white).

2. *Self-Esteem Measures*

Three weeks after the administration of the esteem measure, *S*s were called to participate in a study on interpersonal perception. Specifically, they were told that, in order to evaluate the personality variables related to forming judgments about others, *E* would: (*a*) administer personality tests to *S*, and (*b*) request *S* to judge another person on the basis of her tape-recorded stories to a projective test. Subsequent to the administration of the Human Figure Drawing Test and the first three cards of the Rorschach, the experimenter, who had introduced herself earlier as a graduate student in psychology, indicated that *S* had a right to know the test results. After a 10-minute period during which *E* appeared to be scoring the test protocols, feedback regarding test results was presented in a manner designed to confirm *S*s' initial low or high self-esteem. The reports covered the dimensions of intellectual functioning, egocentricity, impulse control, and overall maturity. Although similar in form, the high and low esteem reports differed in content in order to effect opposite implications. As a check on the self-esteem inductions, *S*s were requested to rate themselves again on the semantic differential scales under the guise of determining "its reliability over a period of time."

3. *Induction of Confrontation*

Subjects were told that further information regarding their psychological functioning would be obtained by measuring their unconscious hostility as manifested by the psychogalvanic skin response (GSR). After a rather elaborate discussion regarding physiological indications of unconscious emotions, *E* connected two electrodes stemming from a "dummy" galvanometer to *S*'s left hand. The task was set for *S* to (*a*) construct sentences for 20 printed words, 10 of which were blatantly hostile,[2] and (*b*) observe and record the resulting galvonometer readings which ranged in four intervals from 100 (very low hostility) to 400 (very strong hostility). Unknown to *S*, galvonometer readings were fully controlled by *E*, who manipulated a hidden calibrated variable resistor. Under the high confrontation condition, use of a hostile word led to the galvonometer needle moving between 100 and 400, eventually resting at 400. Under the weak confrontation condition, the needle moved between 100 and 250, eventually resting at the 200 point, which was labeled as "mixed feelings."

4. *Measurement of Projection*

*S*s listened to five TAT tape-recorded stories told in either the Negro or white voice. Inasmuch as qualitative differences—e.g., pitch, tone—between the "Negro" and "white" voice might produce differential impressions on a basis other than race, the Negro and white TAT stories had been recorded by a female drama student who was adept at presenting a Negro or white voice. Ethnic affiliation of the recorded voice was indicated by both vocal inflections and the interviewer's reference to her race in what appeared to be an inadvertent fashion. The self-reference was achieved by a "staged" interview which preceded the administration of the TAT. This interview was designed to provide the experimental subject with demographic data about the testee. When requested to indicate her ethnic affiliation, the drama student responded clearly, "Negro (or white), of course." The interviewer replied, "I know, but I was referring to your religion." The drama student then replied, "Oh, I see—I'm Protestant." This dialogue had been contrived to reveal the testee's racial status without arousing the experimental subject's suspicion that this situation had been designed to evaluate her attitudes toward a minority group.

The TAT stories were identical in both ethnic conditions and contained some reference to hostile behavior, since pretesting revealed that projection

[2] The hostile words were "killed," "fought," "stabbed," "shot," "destroyed," "murdered," "whipped," "hated," "punished," and "tortured."

was precluded by total absence of such references. The dependent variable, projection, was measured in two ways. First, each *S* was asked to estimate the galvonometer readings, earlier described as indicative of unconscious hostility, which she would anticipate from the stimulus persons for the nonhostile and hostile verbs employed in the confrontation condition. However, because of sensitivity to the civil rights issue among undergraduates at Wayne State University, it was anticipated the subjects might refrain from differentially attributing hostility to outgroups. For this reason, a more indirect measure of projection involving the attribution of unfavorable characteristics that are less "negative" than hostility was employed. *S*s rated the stimulus person on 16 semantic differential scales loaded on evaluative dimensions, such as warm-cold, agreeable-disagreeable, sincere-insincere.

5. *Additional Measures*

In order to create conditions conducive to frank and honest self-reports, the following measures were administered by an experimenter other than the one who administered the confrontation procedures. First, *S* rated her own hostility on a six-point scale ranging from "completely lacking in hostility" to "very strong hostility." The purpose of this scale was to evaluate (*a*) the effectiveness of the experimental induction involving high *vs.* low confrontation and (*b*) the presence of denial or failure to acknowledge an hostile impulse when exposed to evidence indicative of its presence. Since dissonance might be reduced by attributing specific attitudes to *E*, her attitudes toward *S* were rated on the following dimensions: friendly *vs.* unfriendly, fair *vs.* unfair, hostile *vs.* nonhostile, warm *vs.* cold. Doubt regarding the validity of the galvonometer might constitute an alternative means for reducing dissonance: hence, *S*s rated their agreement with the statement, "The galvanic skin response is an accurate indication of unconscious hostility," on a five-point scale ranging from "strongly agree" to "strongly disagree." After each *S* was interviewed to obtain her reactions to the experimental procedures, she was debriefed regarding the actual purpose of the experiment and requested not to discuss it with other students.

6. *Postexperimental Study*

It is clear that the current study assumes that discomfort results from a confrontation with information about certain "undesirable" motives. In order to test this assumption, an additional sample of 87 males and 79 females, also undergraduate students at Wayne State University, completed a 10-item, seven-point rating scale for measuring subject's beliefs regarding how upset

the average student of his sex would be if he or she was unambiguously confronted with information regarding the possession of certain traits. The items most relevant to the issue under discussion were (*a*) "An average college student is told that he or she has strong, unconscious hostile impulses; to what extent is the person likely to be disturbed?" and (*b*) "An average college student is told that he or she is unconsciously sexually attracted to members of his or her own sex; to what extent is the person likely to be disturbed?" Subjects responded by checking one of seven alternatives ranging from "Not at all" (point number 1) to "A very great extent" (point number 7).

C. Results

1. *Effectiveness of the Experimental Induction*

In order to test the central hypotheses, it was necessary that several requirements be met. First, the significant correlation between the initial and postinduction measure of self-esteem ($r = .85$, $p < .01$) indicates (*a*) considerable consistency in self-esteem over time and (*b*) the effectiveness of the experimental procedures in the confirmation of differential esteem levels. Also, the significant difference between high ($\bar{X} = 88.15$) and low esteem ($\bar{X} = 69.55$) groups ($t = 18.79$, $df = 78$, $p < .001$) demonstrates the independence of these two groups. Furthermore, according to the hypotheses, *S*s must differ in their self-ascriptions of hostility as a function of the confrontation treatment. This self-ascription was measured by a six-point line scale with a higher score indicating greater self-ascription of hostility. The relevant data are presented in Table 1.

An analysis of variance of the self-ascription data in Table 1 reveals a significant main effect for confrontation ($F = 25.03$, $df = 1$, $p < .01$) and esteem ($F = 16.77$, $df = 1$, $p < .01$). Thus, strongly confronted *S*s attributed more hostility to themselves than weakly confronted *S*s, and low self-esteem *S*s attributed more hostility to themselves than high esteem *S*s. These results point to the validity of the confrontation and "induction of differential esteem" procedures. However, of even greater importance than these main effects is the significant first-order interaction between confrontation and race of the stimulus group upon the self-attribution of hostility ($F = 4.19$, $p < .05$). This interaction suggests that the self-attribution of hostility on the part of strongly confronted subjects, in comparison with weakly confronted *S*s, was significantly less after listening to the Negro than to the white tape. More specifically, this interaction suggests that, whereas under the white condition highly confronted *S*s attributed more hostility to themselves than weakly confronted *S*s, there was a tendency for this self-attribution to decrease among

the highly confronted *S*s and to increase among the weakly confronted *S*s in the Negro condition. These findings indicate that failure to acknowledge ("denial") hostile impulses among highly confronted *S*s was stronger under the Negro than under white conditions.

TABLE 1
MEANS AND VARIABILITIES FOR MAJOR DEPENDENT VARIABLES

Race of stimulus group	High esteem		Low esteem	
	High confront.	Weak confront.	High confront.	Weak confront.
Means and standard deviations of self-ascribed hostility*				
White	3.7 (1.34)	2.3 (.82)	4.7 (1.95)	3.0 (.82)
Negro	3.1 (.99)	2.8 (1.14)	4.4 (.84)	3.4 (.84)
Means and standard deviations of attributed galvanometer scores				
White	38.6 (6.79)	28.0 (8.71)	38.8 (3.69)	28.1 (6.24)
Negro	39.7 (6.75)	34.2 (7.32)	39.6 (7.86)	29.7 (6.99)
Means and standard deviations of evaluative ratings of stimulus groups				
White	56.1 (6.14)	57.5 (14.18)	57.5 (10.71)	63.7 (11.33)
Negro	64.4 (14.89)	52.6 (10.59)	66.6 (12.19)	57.9 (8.50)

* Standard deviations are enclosed in parentheses.

2. *Measures of Projection*

One measure of projection involved *S*s' ratings of the stimulus person's anticipated galvonometer score for each stimulus word presented during the confrontation conditions. The scores were summed across stimulus words in order to obtain a single attributed GSR score for each subject. To facilitate statistical analysis, these scores were reduced by dividing each *S*'s score by 100. The means and standard deviations of these scores appear in Table 1.

An analysis of variance of the attributed GSR scores indicated a significant main effect for confrontation levels ($F = 35.36$, $df = 1.72$, $p < .001$). This finding suggests that strongly confronted subjects attributed more "unconscious hostility" to the stimulus groups than weakly confronted subjects.

As noted earlier, it appeared conceivable that the independent variables might influence *S*s' differential perceptions of the stimulus groups on dimensions other than hostility. For this reason, an analysis of variance was con-

ducted on *S*s' evaluative ratings of the stimulus groups on the semantic differential scales. The basic datum used in this analysis is summarized in the bottom section of Table 1.

The analysis of variance of the evaluative ratings indicated no significant main effects. However, a significant first order interaction between confrontation and race was obtained ($F = 10.58$, $df = 1/72$, $p < .01$). This interaction indicated that strongly confronted *S*s rated the Negro stimulus (*a*) more negatively than the white ($t = 2.42$, $p < .05$), and (*b*) more negatively than weakly confronted *S*s ($t = 2.85$, $p < .05$).

3. *Alternative Modes for Reducing Dissonance*

It is possible that subjects may have utilized dissonance-reducing mechanisms other than the attribution of unfavorable characteristics. One such mechanism would be scepticism regarding the GSR as a valid measure of unconscious hostility. In order to check this possibility, an analysis of variance based on the effects of the three independent variables upon judgments of GSR validity was computed. The resulting F ratios were insignificant; hence, it may be concluded that doubts regarding GSR validity were not employed to reduce dissonance generated by the experimental conditions. Since the validity of the GSR as a measure of hostility had been stressed during the confrontation condition, and *S*s could observe movements of the galvonometer needle, it is not surprising that scepticism regarding the GSR was unavailable to subjects as an avenue for reducing dissonance. An alternative way of reducing dissonance would be to attribute to *E* unfavorable attitudes towards *S*s. That is, the affect elicited by receiving negative information about the self, particularly in the high self-esteem condition, could be neutralized by attributing negative attitudes to the *E*. An analysis of variance based on a summary of scores of the four scales used to rate the *E*'s attitude revealed a significant difference between levels of esteem ($F = 8.395$, $df = 1/72$, $p < .01$). The finding that high self-esteem *S*s attributed more positive attitudes to the *E* than low esteem *S*s may indicate (*a*) a positive relationship between self-concept and attribution of positive attitudes to others, or (*b*) the realistic perception of *E*'s attitudes as manifested in the self-esteem induction procedures. Although this result does not permit an unambiguous choice between these two alternatives, it may be concluded that attribution of negative attitudes to *E* did not appear to be an important dissonance-reducing mechanism.

4. *Discomfort Associated with Undesirable Information*

The postexperimental study indicated that females' average ratings of disturbance regarding hostility were 5.71. Since this rating closely approached

the point labelled "to a great extent," it may be concluded that confrontation with one's hostility produced much discomfort. This conclusion is strengthened by the finding that the rating of one's own hostility was significantly greater than the rating of "indecisiveness" ($\overline{X} = 4.45$; $t = 6.69$, $p < .01$), a variable evaluated in a dissonance study by Edlow and Kiesler (10). These results provide a basis for assuming some comparability between the present study and other investigations of projection as a dissonance-reducing mechanism. Further analysis suggested that the males' ratings of disturbance regarding homosexuality, $\overline{X} = 6.09$, were significantly greater than the females' ratings of "unconscious hostility," $\overline{X} = 5.71$, at the one percent level ($t = 2.81$, $df = 164$). These findings suggest greater disturbance in males confronted with homosexual impulses than females confronted with unconscious hostility.

D. Discussion

It is clear that these results provide no support for the first two hypotheses. There is no evidence that high esteem persons project more hostility than low esteem persons, or that high esteem interacts with degree of confrontation in determining the target of projection. However, our findings are consonant with the third hypothesis which maintains that denial of possession of an undesirable impulse leads to greater projection upon an out- rather than in-group. Thus, strongly confronted *S*s not only evaluated the Negro stimulus more unfavorably than the white stimulus, but they were also more likely to deny the evidence regarding their strong unconscious hostility during the Negro than white conditions. The concept, "denial," is here used in the sense of an "evasion of disagreeable realities by ignoring or refusing to acknowledge them" (9, p. 96). Insofar as the Negro TAT storyteller may have been viewed as a less favorable object for social comparison, *S*s may have attempted to dissociate themselves from this group by denying that they shared a common quality with this group: namely, hostile motivation. This denial of an unacceptable trait related to the attribution of unfavorable characteristics to the Negro.

These findings are consistent with other studies which indicate the importance of ascertaining *S*s' responses to the confrontation condition. When they were able to minimize the threat associated with clearly unfavorable information through the mechanism of denial, the undesirable characteristic was attributed to dissimilar or negatively valued persons. For example, Edlow and Kiesler (10) demonstrated that, when denial of fraudulent information regarding one's indecisiveness was made easy for subjects who subsequently learned that the test for indecisiveness was invalid, they revealed a tendency to attribute indecisiveness toward dissimilar persons, a criminal group. Also,

attribution of this trait to a similar (student) group was less than under control conditions. Furthermore, Bramel (4) reported that the projection of homosexual impulses toward one's own social category, rather than members of an outgroup, was a function of *S*s' self-attribution of the undesirable trait.

An alternative explanation of these findings would be that highly confronted subjects were angered by the confrontation condition and then displaced their aggression toward the outgroup. This possibility cannot be ruled out without further investigation. However, in line with Buss' (8) recent demonstration that frustration which does not include personal attack is unlikely to lead to aggression, it is probable that the experimenter's rather permissive and nonthreatening manner during the strong confrontation condition minimized the arousal of anger and subsequent displaced hostility.

It should be noted that, whereas strong confrontation resulted in differential evaluative ratings of the Negro and white tapes, this same condition produced high and comparable levels of attributed "unconscious hostility" toward both Negro and white stimulus conditions, as measured by attributed GSR scores. As noted earlier, the *S*s' presumptive sensitivity to the civil rights issue may have inhibited the differential attribution of hostility to stimuli associated with ethnic affiliation. Also, levels of manifest hostility in the Negro and white TAT stories had been equated; thus, the comparable levels of attributed GSR scores may be a function of *S*s' realistic perceptions of hostility levels in these stories.

The finding that self-esteem was unrelated to the amount or direction of projected hostility would appear to be quite discrepant from previous research (4, 5) which demonstrated a significant relationship between high self-esteem and the projection of homosexual impulses. These contradictory findings raise a fundamental question regarding the conditions under which self-esteem relates to the mechanism of projection. The nature of these conditions is suggested by a comparative analysis of Bramel's and the current study. It may be recalled that, whereas Bramel focused on the presentation to male *S*s of information regarding sexual inadequacy, we confronted females with evidence indicative of unconscious hostility. The greater latitude permitted by our culture in defining the feminine role (7) would allow females to view themselves as having a supposedly masculine trait—e.g., hostility—with relatively less threat to their self-concept than the threat experienced by males who were led to believe that they might be homosexual. This conceptualization is consistent with our postexperimental findings of males' greater discomfort regarding homosexual impulses than females' discomfort with hostile impulses.

E. Summary

Dissonance theory predicts that (*a*) strong confrontation with hostile impulses will lead high self-esteem *S*s to project these impulses toward whites, and (*b*) denial of hostile impulses is related to projection toward Negroes. A $2 \times 2 \times 2$ factorial design with 10 *S*s per cell was based on the following independent variables: (*a*) self-esteem, (*b*) level of confrontation, and (*c*) race of the stimulus group. The results indicated that the denial of hostility facilitated the attribution of negative qualities to the Negro. The insignificant relationship between self-concept and projected hostility suggests that *S*'s sex and the nature of the projected impulse constituted mediating variables between self-esteem and projection.

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THE SOCIAL ASPECTS OF WIT AND HUMOR*

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A. INTRODUCTION

In spite of the importance placed upon the sense of humor as a distinctively human and ennobling quality, very little concerted theoretical research has been undertaken in this area (2). Studies have usually been pursued from the Freudian frame of reference, unfortunately with the neglect of Freud's incisive distinctions between humor and wit (1). What has been called research on humor should actually be labeled wit research, if one faithfully followed the theoretical distinctions of Freud. Resignation was contrasted by Freud with humor and wit, the appreciation of that variable implying less maturity than humor but more than wit preference. There have been no previous attempts to relate Freudian humor and resignation to overt behavior.

The ability to produce and/or appreciate humor was, for Freud, the operational definition of maturity, a standard which psychoanalysis has often been criticized for lacking. The prototype of the humorous reaction was the condemned person going to his unsought execution without useless fights or flights and creating nonhostile jests while en route. The model for resignation was the same lack of behavioral decompensation without the enlivening jests. Freud's equating of the personality structure of producer and appreciator of humor has been dogmatized to the extent that this premise has not been researched until recently (4). Experimentation has generally followed the psychometric approach, measuring the preferences of divergent groups for certain jests; therefore spontaneous production of wit and humor by group members has been overlooked. The intrapersonal emphasis has likewise hobbled puzzlement about wit. In instinctive theory, wit is a technique for the release of repressed hostile-sexual drives, therefore having neurotic undertones. The socially creative side of wit has been largely ignored.

The present study was designed to correlate psychometric measures of wit, humor, and resignation with sociometric peer evaluations, thereby testing the assumption of a positive significant relationship between jest appreciation and jest production in extended group encounters.

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B. Method

*S*s were patients at the Houston VA Hospital Patients' Training Laboratory over a six-month period (5). The major criteria for acceptance in the program are literacy, reasonably good contact with reality, an indication of willingness to face interpersonal problems, and a desire to enter the program. The patients selected must have at least fourth- or fifth-grade literacy skills. They should have at least a slight awareness of their interpersonal difficulties; even willingness to consider the possibility that they have personal problems may make them acceptable. The program does accept moderately somatic patients if they will entertain the possibility that their symptoms are related to unsatisfactory relationships with their wives, families, or employers.

The average age of these 91 *S*s was 40.6 ($s = 8.8$), education 12.0 years ($s = 2.9$), and *IQ* 107 ($s = 15.6$), as measured by the self-administered Army General Classification Test (AGCT). Each patient was assigned to a Development Group for 20 unstructured hour-and-a-half meetings (five per week). As part of the initial battery of tests the patients completed the Story Test (3), which gave psychometric scores on wit, humor, and resignation over the 18 items. At the end of each training week all *S*s were given the 22-item Group Behavior Questionnaire (GBQ). Two of the items pertained to wit production, choices of who said witty and amusing things to make members laugh and who said such to be "sarcastic." Each group took the GBQ four times and weekly percentages were computed for each *S* on each question. For example, for question 21 the weekly "to make us laugh" percentage was calculated by adding the number of "funny" choices a *S* received and dividing by the total possible choices he might have received. If there were six other men in the group and he received three wit choices, his percentage was 50. The average of these four weekly scores represented the sociometric data which were then correlated with the psychometric Story Test results given upon admission to the program.

The Story Test used in this study was developed from the writings and examples of Freud, with the 18 anecdotes chosen to represent stressor situations. For each story the *S* is presented with three endings representing humor, hostile wit, and resignation, which he rates from 1 (dislike very much) to 5 (like very much). His total score is derived from summing the endings for all 18 anecdotes.

C. Results and Discussion

Sociometric items which reflected ability to produce wit had no significant correlations with the psychometric appreciation of humor, hostile wit, or resignation.

The "funny" wit, whose goal was to make the group laugh, had significant correlations beyond the .01 level with all but three of 21 behaviors tapped by the sociometric. In short, the one who said amusing things to motivate others to laugh was reported by his peers to be quite outstanding in other behaviors as well. He tended to be accepted and influential, yet clashed frequently and would not be likely to depend on or yield to the opinions of others. Attention was sought, but through the method of talking about his problems. He was considered a leader who could be quite hostile, competitive, and talk about topics unrelated to the group tasks. Yet he was popular and wanted to keep the group actively working toward goals. In contrast the salient features of the sarcastic wit were clashing, attention-seeking, nonconformity, active verbal-hostile competition, and success in gaining popularity. There were noticeable behavioral differences between those who produced "funny" and those who created "sarcastic" wit. The sarcastic wit clashed more in his greater strivings for attention. He was a more hostile competitor with less influence and "desire to accomplish something," and less need for a warm group than his witty counterpart.

There were no significant differences between the correlations of the psychometric scores of resignation and hostile wit appreciation with the GBQ sociometric. At the other extreme were inverse relationships of resignation with wit production on the behavioral items. Of 22 correlations tested for differences with "amusing . . . to make us laugh," only four failed to reach significance at the .01 level. Contrasted with this "funny" wit producer, the resignation appreciator was uninfluential, unaccepted, nonhostile and nonclashing, dependent, unobtrusive, unpopular, not open to others, and withdrawn: a passive, other-directed unpopular person. The same general picture emerged when the resigned one was compared with the "sarcastic" wit producer. The latter, though, was even more extreme in his nonconforming clashing rivalries.

Resignation appreciation correlated highly with other psychometric measures of wit and humor, but the difference between humor on the one hand and hostile wit and resignation appreciation on the other was valid. This is seen in the differences between the resignation and humor correlation ($t = 3.02$, $p < .01$) and hostile wit and humor correlation ($t = 3.31$, $p < .01$) contrasted with the hostile wit-resignation similarity ($r = .72$, $p < .01$). On the sociometrics, the humorist was more influential and independent, an acceptable leader who was more group-oriented in his actions than was the resignator.

The differences between the behavioral correlations of humor and hostile wit appreciation were theoretically relevant. When contrasted with the hostile

wit, the humorist was more influential and accepted by peers; yet he did not depend upon or yield to fellow group members. He was seen as a genuine leader who wanted the group to accomplish goals even at the expense of active rivalry.

A positive significant correlation appeared between the creator of laughter in the group and *IQ* ($r = .22$, $p < .01$), and inverse significance between *IQ* and hostile wit ($r = -.22$, $p < .01$) and resignation appreciation ($r = -.24$, $p < .01$). Freud's contention that humor is the favorite mechanism of thinkers seems on the basis of this finding to apply to the "funny" wit producer more than to the appreciator of humor.

It may be that of all the actions rated in this project the "funny" wit was the closest to Freud's idea of humorist, a person whose jests provide emotional release without threat to the group, although the element of stressor conditions was not included in the sociometric. At any rate, this kind of wit seemed to behave maturely according to the correlated judgments of peers. He was a popular, influential, and active leader whose concern for group cohesion did not blind him to the need for his own responsible nonconformity. This social wit was disregarded by Freud perhaps because social factors were not of prime importance for him, wit and social behaviors alike being reduced to derivatives of repressed hostile and social instincts.

The producer of sarcastic wit appeared more related to Freud's hostile wit. He was more hostile and less group-centered, less influential and friendly than the funny wit. Yet the one who scored high on hostile wit appreciation was almost the opposite in behavior. Like the person who preferred resignation, he was withdrawn, hyperdependent, isolated, and unpopular. It does appear that the "sarcastic" wit was an aggressive and fiery group participant, but one who appreciated hostile wit did not engage in such actions. On the basis of this study, he was more the antithesis of such stubborn activity.

D. Summary

The goal of this study was to examine the relationships between psychometric measures of humor, hostile wit, and resignation appreciation and behavioral manifestations of wit and other peer group interactions. The *S*s were 91 male neuropsychiatric patients at the Houston VA Hospital engaged in developmental group training for four weeks. There was little relationship between wit production and appreciation. On the sociometric side the "funny" wit was regarded by his peers as an influential leader, quite popular and active but independent. His "sarcastic" counterpart seemed more hostile and less

influential and popular. Those high in resignation appreciation were relatively withdrawn, isolated, and unpopular.

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EMOTIONAL RESPONSE TO STATEMENTS CONGRUENT WITH PREJUDICIAL ATTITUDES* [1]

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A. INTRODUCTION

Beyond the fact that social psychologists have long held that prejudice represents a special type of social attitude, and that a prejudice is a judgment before, in lieu of, or despite objective evidence, is the widely accepted assumption that prejudice is supported, or defended, or fortified by a relatively great amount of emotion. Among the various techniques used to measure the level of the physiological arousal component in emotion is the galvanic skin response (GSR). A limited number of studies have made use of the GSR in attempts to determine whether or not prejudicial states—i.e., when an individual is in the act of directing a prejudicial attitude toward an object of his prejudice—are in fact accompanied by elevated states of emotion (1, 2, 3, 7, 8, 9, 10, 11). Our studies (4, 5, 6) have indicated that when negative prejudicial attitudes were verbally contradicted, subjects showed relatively great emotional arousal as measured by the GSR. One study (6) provided positive, though minimal, evidence in support of the thesis that when positive prejudicial attitudes were verbally contradicted, subjects also showed relatively great emotional arousal.

The present study follows the same basic design as those previously reported (4, 5, 6). However, since thus far we have only measured GSRs under conditions which held prejudicial attitudes up to verbal contradiction, we would now seek to discover the effect of subjecting prejudicial attitudes to verbal approval. In order to provide congruity with the hypothesis of our previous studies, the present hypothesis again was that critical stimuli would more frequently evoke GSR magnitudes greater than noncritical (neutral) stimuli.

B. SUBJECTS, EQUIPMENT, PROCEDURES

Some 200 college freshmen enrolled in elementary psychology classes were administered paired-comparison attitude scales. Of these, 30 were later selected

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for individual laboratory sessions. The basis for selection was dual: (*a*) an extreme score, indicating either a strong positive or strong negative prejudicial attitude, and (*b*) availability and willingness to participate in a laboratory session. Fifteen subjects, 10 females and five males, constituted each of two samples. One sample (affinity) was composed of subjects who had indicated a strong affinity for some ethnic or national group; and the other (antipathy), of those who had indicated a strong antipathy for one of the groups.

The paired-comparison scale contained the names of the following 10 groups: Austrians, Canadians, English, Germans, Irish, Japanese, Jews, Mexicans, Poles, Swedes. The 45 pairs were arranged randomly. The test-retest reliability coefficient for the paired-comparison scale is .92 (7).

The GSR equipment used was a Stoelting Dermograph (Model 24203). This unit is equipped with a kymograph mechanism which drives coordinate-line paper upon which a pen records GSR magnitudes.

Subjects in both the *affinity* and the *antipathy* groups were treated similarly with respect to introduction to the experimental situation and "balancing-in." They were told that the experiment was designed to validate a method for GSR measurement. At a later time a full explanation was made to the participating subjects. These procedures were virtually identical to those used in previous studies, and described elsewhere (4, 5). Final "balancing-in" was accomplished during the reading of two innocuous statements, each containing the name of a national group (Danes, Icelanders). GSR measurements were then made while the subject listened without comment to the reading of three statements, the order of which was rotated from subject to subject. For the *affinity* subjects the following stimulus materials were presented: (*a*) a complimentary statement into which was inserted as the referent the name of the subject's strongly preferred group; (*b*) a comparable complimentary statement containing the name of a group toward which the subject had indicated attitude neutrality; (*c*) a derogatory statement containing the name of another group toward which the subject had also indicated attitude neutrality. For *antipathy* subjects the following stimulus materials were presented: (*a*) a derogatory statement into which was inserted as the referent the name of the subject's strongly disliked group; (*b*) a comparable derogatory statement containing the name of a group toward which the subject had indicated attitude neutrality; (*c*) a complimentary statement containing the name of another group toward which the subject had also indicated neutrality.

C. Results

For each subject the magnitudes of his three GSRs were calculated by measuring the areas under the curves described by the marking pen. This was

done by summing the rectangular spaces, and fractions thereof, which were described by the parameter. This method of calculation was the same as that used in previous studies (4, 5).

Data analysis consisted of calculating the frequencies by which a given treatment evoked GSRs in excess of, equal to, or smaller than some other treatment with which it was being compared. For these frequency comparisons binomial tests were made.

The neutral groups for each subject were those he had scored in positions 4 and 5, or 4 and 6, or 5 and 6. For the *affinity* sample there were three ties, thus providing 12 GSR magnitude comparisons. For the *derogatory* sample there was one tie, thus providing 14 GSR magnitude comparisons. For both samples, half the subjects' GSRs were greater to complimentary statements regarding one neutral group, and half were greater regarding the other neutral group. The ratios, then, of frequencies of complimentary-statement-evoked GSR magnitudes *to* derogatory-statement-evoked GSR magnitudes were both 1.00. As found previously, the tone of the statement itself, whether complimentary or derogatory, did not seem to determine GSR magnitude when the referent group was of little significance to the subject. Apparently neutral groups are satisfactory stimulus objects for use in this type of study, and so it seems justifiable to assume that (*a*) complimentary and derogatory statements are, in and of themselves, of equal GSR evocation value; (*b*) neutral stimulus objects, subjected to either complimentary or derogatory comment, are acceptable as standards to which critical stimulus materials may be compared when subjected to like treatment.

For the *affinity* sample, there were 12 nontie subjects when GSR magnitudes elicited by complimentary statements regarding most preferred groups were compared with magnitudes elicited by complimentary statements regarding neutral groups. Of these, 11 GSRs were greater to the most preferred groups, and one was greater to the neutral group. This finding was in the predicted direction, and the binomial test gave a p value of .003. Also there were 14 nontie subjects when GSR magnitudes elicited by complimentary statements regarding most preferred groups were compared with those elicited by derogatory statements regarding neutral groups. Of these, nine GSRs were greater to the most preferred groups, and five were greater to the neutral groups. While this was in the predicted direction, the significance level was unsatisfactory.

For the *antipathy* sample, there were 12 nontie subjects when GSR magnitudes elicited by derogatory statements regarding most disliked groups were compared with those elicited by derogatory statements regarding neutral groups. Of these, eight GSRs were greater to the most disliked groups, and

four were greater to the neutral groups. While this was in the predicted direction, the significance level was again unsatisfactory. Finally, there were 14 nontie subjects when GSR magnitudes elicited by derogatory statements regarding most disliked groups were compared with those elicited by complimentary statements regarding neutral groups. Of these, six GSRs were greater to the most disliked groups, and eight were greater to the neutral groups. This was contrary to the prediction, though the difference was nonsignificant.

D. Discussion and Summary

The purpose of the present study was to determine whether emotional arousal is relatively great when prejudicial attitudes are subjected to verbal approval. In the two principal tests, more subjects were found to display greater emotional arousal under such conditions. Those who listened to statements complimenting both their strongly preferred groups and groups toward which they had expressed relative neutrality displayed greater arousal to the former at a statistically significant level. However, while a majority of the subjects displayed greater arousal to derogatory statements referring to their most disliked groups than to derogatory statements referring to groups toward which they had expressed relative neutrality, the frequency difference was nonsignificant.

In our studies thus far, then, two findings of significance seem to have emerged. First, when the object of a negative prejudicial attitude is exposed to a verbal statement which strongly compliments that object, the subject reacts with relatively great emotionality. Second, also when the object of a positive prejudicial attitude is exposed to a verbal statement which strongly compliments that object the subject reacts with relatively great emotionality. It is suggested here, as before, that from a psychodynamic standpoint strong negative and positive prejudicial attitudes do not seem to be *equally* opposite.

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THE EFFECT OF LABELING AS AN INFORMATIONAL SOCIAL INFLUENCE UPON COLOR PERCEPTION* [1]

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A. INTRODUCTION

Many experimental studies in a tradition initiated by Sherif (5) and Asch (1) document the effect of social pressure upon individual psychological processes. As is well known, in Asch's work *S*s' estimates of the length of lines were affected by the responses of other *S*s. The interpretation to be placed upon these *S*s' altered estimates is less clear. It is not certain that their perception of the stimulus was affected. As has frequently been pointed out, their altered responses could simply reflect a desire to avoid contradicting a unanimous opposition.

The difficulty inherent in interpreting the responses of *S*s in social influence experiments is due partly to the failure of experimenters to specify the type of "social influence" involved. Deutsch and Gerard (2) significantly advanced this question by distinguishing *normative* from *informational* social influence. The motivational underpinning of normative influence is the *S*'s desire to reinforce the influence source by agreeing with it. In this case, the primary influence is upon the *S*'s responses rather than his perception *per se*. Informational influence, on the other hand, refers to the fact that others' judgments serve as anchors for an individual's experience. The responses of one's peers serve as evidence for interpreting an experience. In fact, their effect is much the same as those of the physical properties of the stimulus involved. Social influence of an informational nature is more likely to result in an effect upon perceptual, as well as response processes, than is the case with normative social influence. When the social influence variable in an experiment is of the informational rather than the normative type, it is reasonable to interpret the *S*s' altered responses as reflecting influence upon their perceptions. While informational influence certainly can operate to influence responses *per se*, it is likely that perceptual processes are also affected.

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[1] This investigation was conducted at Iowa State University while the first author had a National Science Foundation Summer Fellowship for Graduate Teaching Assistants.

Normative and informational social influence typically occur together. It is possible, however, to maximize the probability that one rather than the other type of influence will be operative. As follows directly from Deutsch and Gerard's definition of normative influence, the absence of the direct presence of an influence group decreases the likelihood of normatively based influence. Relatedly, the more disguised the influence attempt, the less likely it is that the *S*s' altered responses are the result of normatively based influence. Finally, if one wished to vary informational social influence, an ambiguous rather than structured stimulus situation would be advisable. Normative influence can be effective in highly structured stimulus situations (such as Asch's) given the *S*s' desire to reinforce the influence source. Presumably, informational influence would be most likely to be operative when the *S*s' perceptions were uncertain as a result of ambiguous stimuli. It is admittedly impossible to be certain that one is dealing only with informational social influence. However, an experimental situation in which the influence source is absent, the influence attempt covert, and the stimulus situation ambiguous would maximize the probability that the social influence is informational in nature. Such a situation also maximizes the probability that *S*s' altered responses reflect influences upon perception, as well as verbal behavior *per se*.

Recently, interesting examples of social influence upon responses to colors have been reported. Thomas and DeCapito (6) found that the *S*'s initial labeling of a color as blue or green significantly influenced his perception and recognition of that color and other colors of different wavelengths. Thomas, Hoving, and La Monica (7) had the *E* use a label to identify the color. They found that the more the *S* agreed with the label imposed by the experimenter, the more he was influenced by it. It seems likely that the type of social influence exerted in these studies was normative as a result of the presence of the influencing agent and the direct association of the label with the influence source.

Another possible determinant of the *S*s' subsequent reactions is their initial reactions to the stimulus: whether they thought it blue or green. Thomas *et al.* (6, 7) did not investigate the possibility that their *S*s' responses were in part due to their tendency to see the color originally as either blue or green. While the social influence of a label should affect subsequent color determinations, this variable presumably would interact with the *S*'s initial judgment.

It will be the purpose of the present study to investigate the effect of social influence, labeling, upon color determination. The nature of the design will maximize the probability that the social influence will be informational in Deutsch and Gerard's sense of that term. The principal hypotheses are that

(*a*) the *S*'s original reaction to a color stimulus will affect subsequent responses and (*b*) the social influence of a label will interact with the *S*'s original reaction, thereby illustrating the effect of informational social influence upon color responses. Since the term informational influence refers to the fact that the *S* accepts the communication as evidence about the nature of the stimulus, we assume that any significant effect due to the label partly reflects influence upon the *S*'s *perception.*

Two other variables of less direct importance have been manipulated, since the literature suggests their possible influence. Keasey (4) demonstrated that *S*s react differentially to influence sources of like as opposed to unlike sex. Secondly, the effect of informational social influence may vary with the perceived expertise of the source. To examine the possible effects of this variable, two groups (artists *versus* history teachers), equated on overall social status but divergent in ability to make color determinations, have been included as treatments within the design.

B. Method

1. *Subjects*

The *S*s for this experiment consisted of 96 male and 96 female undergraduate students at Iowa State University and Midwestern College. They were the first 48 males and 48 females who identified an ambiguous blue/green color stimulus as blue in the initial phase of the experimental manipulation, and the first 48 males out of 52 and the first 48 females out of 54 who identified the stimulus as green.

2. *Apparatus*

The color stimulus chosen to serve as the test stimulus was selected because of its ambiguity with regard to color-naming categories. This fact was determined in a pilot study, in which 81 college students were asked to select the most appropriate name for the color 489.5 mu (blue-green), from a list of six color names (red, orange, yellow, green, blue, and violet). "Blue" was selected by 42 students and "green" by 39 students.

The other eight colors used in the study were equal to the test stimulus in lightness-darkness and saturation, but varied in hue (wavelength). They were all Munsell individual color papers with a matte finish. The nominal Munsell notations were as follows: 7.5 G5/6, 10 G5/6, 2.5 BG5/6, 5 BG5/6, 7.5 BG5/6 (original color stimulus), 10 BG5/6, 2.5 B5/6, 5 B5/6, and 7.5 B5/6. These colors represented points on a continuum from green to blue with the test stimulus being the blue-green color at the midpoint.

The color stimuli were presented to the *S* through a 7/8-inch aperture that was located at the center of a 22 × 28 inch panel. The panel, which was constructed of black posterboard, faced the *S* so that the aperture was approximately at eye level. The *S* was seated in a chair at the end of the table on which the panel was mounted. The color stimuli were mounted on six circular discs eight inches in diameter. On five discs the nine stimulus colors were arranged in different random orders. The sixth disc contained the test stimulus plus pink, gray, violet, red, yellow, purple, orange, and white.

3. *Procedure*

After each *S* was seated, he was instructed to read over a card that listed the color names: red, orange, yellow, green, blue, violet, white, black. He was told that he would be presented with a series of color stimuli in the aperture in front of him and that he was to pick the one color name from the card that most correctly described the color stimulus in the aperture. The *S* was then shown the nine different colors on the sixth disc, and *E* recorded the name each *S* assigned to the test stimulus. *E* then told the *S* that he "seemed to have a certain amount of aptitude at this sort of thing" and requested that he participate in a second part of the experiment. Each *S* was thereupon told that a specific color would be presented to him for 30 seconds through the aperture and that the color had been judged to be blue (or green) by a group of male (or female) artists (or high school history teachers) in a previous experiment. The *S* was told that he must keep this color in mind, since he would be asked to identify it later. He was given 30 seconds to look at the color and was then told that he would be given the signal "ready" and a few seconds later a color would appear. The *S* was to decide whether the color to be presented was the same as the test stimulus. Before any color stimuli were presented, the *E* answered any questions the *S* had and cautioned him to hold the test stimulus in mind, to respond as rapidly as he could, and not to be disturbed by possible errors.

After these instructions the *S* was exposed to the five color discs in a standardized order. Each of the nine stimulus colors was presented to the *S* for two seconds. There was an eight-second interval between stimulus colors during which the *S* saw only black. Thus, during the course of the experiment every *S* was exposed to each of the nine color stimuli five times, for a total of 45 presentations.

4. *Design*

A 2 × 2 × 2 × 2 × 2 factorial design was employed in this study. The five variables were as follows: *Variable A,* the *S*'s tendency to see the test

stimulus as blue or green; *Variable B,* whether the information source agreed or disagreed with the *S*'s tendency to see the test stimulus as blue or green; *Variable C,* the sex of the *S; Variable D,* the influence source (artists or high school history teachers); and *Variable E,* the sex of the information source. As a result of these manipulations there were 32 treatment groups, each consisting of six *S*s.

The dependent variable was the amount of influence exerted upon the *S*'s perception of the test stimulus. This was obtained by first assigning the numbers one through nine to the nine color stimuli. The test stimulus was assigned the number five, the "bluer" colors were assigned the numbers one through four, and the "greener" colors were assigned the numbers six through nine. Thus, each time an *S* gave a "yes" response, the number (from one to nine) assigned to that stimulus was recorded. This record of each *S*'s responses constituted his response distribution from which a mean response was calculated.

It was on the basis of these mean responses that inferences about the operation of influence were made. It was assumed that if the label assigned to the test stimulus had no influence upon the *S*'s perception, his response distribution should have approximated a normal distribution around color stimulus number five. However, if the *S*'s perception was influenced by the assigned label, then the *S*'s mean response should differ from five. The extent of influence exerted by the various experimental treatments would be indicated by the extent to which the mean response for that treatment differed from five.

C. Results and Discussion

Only one of the five main effects, Variable A (*S*'s tendency to see the test stimulus as blue or green), was found to be statistically significant ($F = 8.742$, $df = 1$ and 160, $p < .005$). This indicates that an *S*'s tendency to see the test stimulus as green causes him to respond differently from another *S* who tends to see the test stimulus as blue. As previously discussed, Thomas *et al.* (6, 7) omitted consideration of this variable in their studies. The *S*s' perceptions of subsequent colors are in great measure anchored by their perceptions of the test stimulus. This effect need not be mediated by explicit labeling operations as in the Thomas *et al.* studies.

Among the 10 second order interactions, two, A $\times$ B (Color $\times$ Agree-Disagree) and C $\times$ E (*S*'s Sex $\times$ Source's Sex), were found to be statistically significant ($F = 9.588$, $df = 1$ and 160, $p < .005$) and ($F = 4.068$, $df = 1$ and 160, $p < .05$) respectively. The Color $\times$ Agree-Disagree interaction, graphically represented in Figure 1, indicates that when a *S* is informed that the information source agrees with him in judging the test

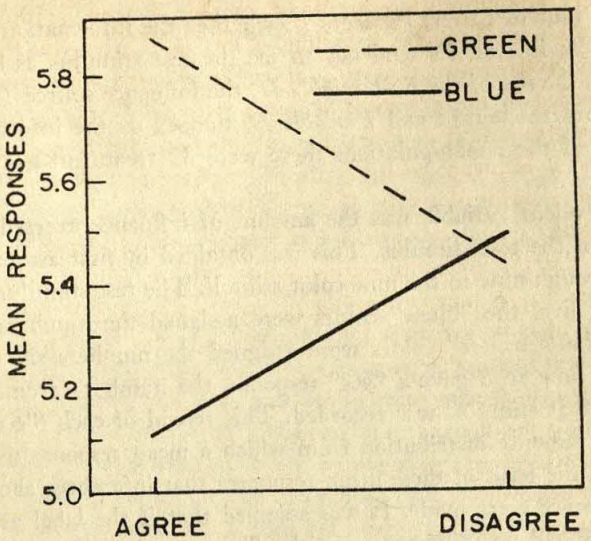

FIGURE 1
MEAN RESPONSES FOR SUBJECTS LABELING THE ORIGINAL COLOR BLUE AND GREEN IN THE AGREE AND DISAGREE CONDITIONS

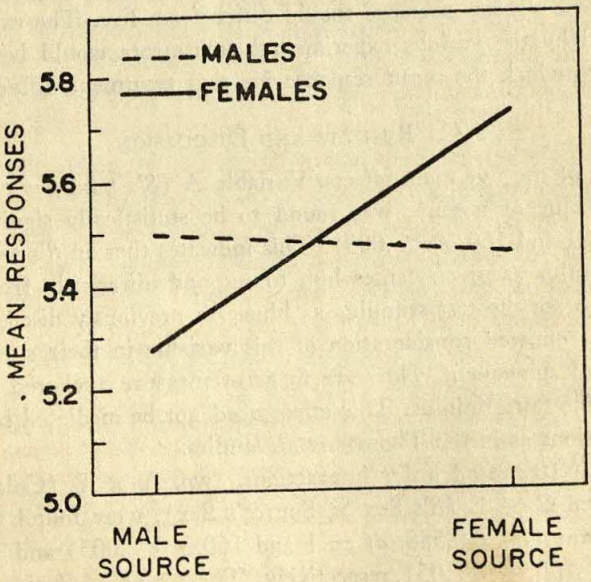

FIGURE 2
MEAN RESPONSES FOR MALE AND FEMALE SUBJECTS TO INFORMATION FROM MALE AND FEMALE SOURCES

stimulus, he responds differently than another *S* who is informed that the information source disagrees with him. Thus an *S* who saw the test stimulus as green and is informed that the information source also saw it as green is more influenced in the direction of green than an *S* who is told that the information source saw it as blue. This interaction clearly indicates that informational social influence modifies the *S*s' perceptions. Reasonably enough, it does so by interacting with the *S*s' original perception.

The *S*'s Sex × Source's Sex interaction, graphically represented in Figure 2, indicates that *S*s are more influenced by information sources of their own sex than they are by members of the opposite sex. Thus a male *S* who is told that a group of male artists judged the test stimulus to be green (or blue) is more influenced in the direction of green (or blue) than a male *S* who is told that the same information source consisted of females. This effect is consistent with many theories of social influence—*e.g.*, Festinger's social comparison theory (3)—which assume that similarity between the source and target facilitates the influence process. The data indicate that the presumed expertise of the source had no effect upon the *S*s' color determinations.

D. Summary

While normative social influence primarily affects response but not perceptual processes, there is reason to believe that informational social influence affects perceptual processes also. Indeed, this follows from the definition of informational social influence. While these two sources of social influence typically occur together, it is possible to maximize the probability that one rather than the other has been manipulated. The present study demonstrates that when informational social influence is emphasized by keeping the influence attempt covert, the influence source absent, and the stimulus situation ambiguous, (*a*) *S*s' initial perception of a color stimulus anchors subsequent color determinations and (*b*) informational social influence interacts with the *S*s' initial perceptions so as to modify them significantly.

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EFFECT OF ACADEMIC INTEGRATION ON SOUTHERN NEGRO STUDENTS EXPRESSED SATISFACTION WITH SCHOOL* [1]

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A. PROBLEM

The academic plight of Southern Negro students has been a major concern of educators and social scientists for more than a decade. Since the historic 1954 Supreme Court decision, numerous studies have demonstrated that segregation has a debilitating effect on personality development, academic achievement, and affinity for educational pursuits. For example, Kardiner and Ovesey (6, p. 72) write: "It is difficult to conceive of a more hopeless and dispirited group than a high school class of Negro adolescent girls; nor a more bored and resentful group than a high school class of Negro boys." These authors suggest three major reasons for the Negro's apathy toward education: (*a*) failure to see the relevance of education to vocational opportunities, (*b*) involvement in part-time work, and (*c*) competition from street life.

A critical question is whether academic integration is efficacious in ameliorating the deep seated antipathy which many Negro students evidence toward school. Surprisingly, some research (4, 8) indicates that among Negro high school students degree of desegregation is unrelated to educational-vocational aspirations and satisfaction with school. Even more pessimistic are the findings of Becker, Sunblad, and Holmes (1) and Williams (10) which suggest that the educational morale of Negro students may actually be decreased in the desegregated milieu.

In contrast to the previously cited studies, other research indicates that academic desegregation does enhance affinity for school. Koontz's (7) longitudinal study of Negro pupils enrolled in a formerly all-white Southern school showed that the majority were satisfied with the total school experience and that degree of satisfaction was positively related to longevity in the desegregated setting. Boyd (2) found that Negro students in a nonsegregated ele-

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mentary school had even higher levels of aspiration than a concomitant group of white *S*s. The effect of desegregation on academic morale undoubtedly depended more on the quality of the integrated experience than physical integration *per se*. An integrated setting characterized by failure and embarrassment for the Negro student would likely decrease his academic morale, whereas an accepting integrated milieu would likely enhance affinity for school.

The purpose of the present study was to assess longitudinally the impact of school desegregation on the expressed academic morale of Negro students living in rural areas of the Southeastern United States.

B. Method

1. *Subjects*

The *S*s were selected on a random basis from a cross-section of rural and small urban secondary schools in Western Tennessee. The age range of the *S*s was 13 to 19. From the total sample of 579 students, six racial-educational groups were constituted: (*a*) Negro students entering newly desegregated schools, $N = 17$; (*b*) white students attending newly desegregated schools, $N = 203$; (*c*) Negro students in segregated schools, $N = 48$; (*d*) white students attending segregated schools, $N = 164$; (*e*) Negro students attending schools which had been desegregated for one year or more, $N = 19$; (*f*) white students attending schools which had been desegregated for one year or more, $N = 128$. In the main, students had no choice concerning whether they attended a segregated or desegregated school.

2. *Instrument and Procedure*

A revised form of the Illinois Inventory of Pupil Opinion (5) was administered by local counselors to all *S*s at the beginning and end of the 1966-1967 academic year. Students were instructed not to sign their names to the questionnaires. Instead, they were identified by numbers, with the counselors retaining the master identification lists until the end of the academic year. Because of discrepancies between the fall and spring identification lists some of the students tested could not be included in the final sample.

Questions on the pretest form of the opinionaire were couched in the future tense: e.g., "Do you think you will be satisfied or dissatisfied with your school?" Items on the posttest form were stated in the past tense: e.g., "Were you satisfied or dissatisfied with your school?" The revised form is comprised of 25 items dealing with opinions concerning issues such as grades, fairness of teachers, kindness of other pupils, assistance from teacher, practicality of school work, financial demands imposed by the school, academic standards of the

school, and adequacy of school facilities. In the main, it utilized a Likert-type format: e.g., "I was very much dissatisfied, I was dissatisfied, about half and half, I was satisfied, I was very well satisfied." Twenty-six scores were tabulated for each *S*, a score for each of the 25 items and a total score based on responses to all 25 items. Most items were scored on a five-point scale, with the higher scores indicating a more positive orientation toward school.

C. Results

An analysis of variance, mixed design was used in analyzing responses to each of the 25 items and the total score (summation of responses to 25 test items). The between variable was racial-educational group and the within variable the pre-post dimension. In general, the findings indicate that during the course of the 1966-1967 academic year the expressed satisfaction with school of both Negro and white *S*s decreased. Analysis of the *S*s' total scores yielded a significant pre-post main effect, with the pretest scores significantly higher ($p < .001$) than the posttest. In addition, pre-post main effects were obtained for 17 of the 25 individual questions. Of these significant main effects, 14 were in the direction of pre>post and three in the direction of pre<post. Furthermore, analysis of significant interactions yielded 10 pre-post simple effects involving Negro groups. The computation indicated that only two of these simple effects were due to higher pre- than posttest scores.

Analysis of the results also produced significant main effect differences between the racial-educational groups for 20 of the individual items. In the main, these findings indicate that of the Negro groups, the segregated Negro students were deriving the least satisfaction from their school experience and Negroes in previously integrated schools, the greatest satisfaction. Also, on most of these dimensions, the Negroes obtained significantly lower scores than concomitant white groups. However, this disparity was much more evident in the segregated and newly integrated schools than in the previously integrated settings. Of the six main effect differences between Negro and white *S*s in newly integrated schools, only one favored Negroes over whites. The comparison of segregated Negroes and whites yielded 12 significant main effect differences, with Negroes obtaining higher scores than whites on only one dimension. In contrast, of the 14 main effect differences between the Negro and white *S*s in previously integrated schools, Negroes exceeded whites on six variables.

For the nine dimensions yielding significant interactions, the differences between the racial-educational groups at the pretest level generally correspond to the main effect differences, but the trends were altered slightly at the post-

test level: i.e., at the end of the year the segregated Negroes evidenced greater satisfaction with school than either of the integrated Negro groups. Of the seven simple effect differences between Negro and white *S*s at the pretest level, only two (both in the previously integrated settings) favored Negroes over whites. At the posttest level, three simple effects (all in the previously integrated groups) out of 11 favored Negroes over whites.

Analysis of responses to several specific items on the questionnaire provided additional insight regarding the Negro's perception of school. Item 1, for example, related to marks which students were receiving on their report cards. A significant interaction revealed that at the pretest level Negro and white *S*s reported similar marks on their previous report cards, but at the posttest level, with the exception of the segregated Negro group, Negro *S*s reported significantly lower marks than the white students. Also, segregated Negroes reported significantly higher marks than either of the integrated Negro groups at the termination of the academic year.

Items 5 and 7 were concerned with the student's perception of teachers and other school officials. Item 5 was related to general satisfaction with teachers, whereas Item 7 dealt specifically with the extent to which the students felt they had been treated fairly by their teachers. Responses to Item 5 evidenced little difference between Negro and white *S*s in magnitude of general satisfaction with their teachers and other school officials. However, reactions to Item 7 indicate that Negroes compared to concomitant white groups were more negative in their appraisal of teacher fairness. Surprisingly, at the pretest level, Negroes in segregated schools were less favorable in their judgment of teacher fairness than were the Negro *S*s in desegregated schools. There was no significant difference between the Negro groups at the posttest level.

Items 6, 9, and 10 related to the very basic issue of interpersonal relationships between students. Item 6 specifically mentioned becoming "one of the gang" at school. Responses to this question revealed a significant disparity between Negroes and corresponding white groups (whites>Negroes). The data also indicate that Negro students in segregated schools obtained significantly higher scores than either of the integrated Negro groups. Item 9 pertained to general attitudes of fairness and kindness exhibited by students toward one another, whereas Item 10 focused specifically on the extent to which the *S* felt he was being treated fairly and kindly by his fellow students. Surprisingly, students in the newly integrated schools responded more favorably to these questions than the other Negro groups. Furthermore, a significant interaction for Item 9 indicated that this disparity was much more pronounced at the posttest level than at the beginning of the school year. With the excep-

tion of the Negro *S*s in newly integrated schools, the Negro students obtained significantly lower scores for Items 9 and 10 than did comparable white groups.

The one item on which Negroes evidenced a pronounced superiority to whites dealt with the practical utility of school work. All three Negro groups reported greater satisfaction with the practicality of that which they were studying than did the corresponding white groups.

D. Discussion

A major objective of the present investigation was to compare students' anticipated satisfaction with school (assessed at the beginning of the academic year) and expressed satisfaction at the termination of the academic year. The data strongly suggest that the actual experience of going to school has a debilitating effect on affinity for school. This trend was evidenced by both Negro and white *S*s in both integrated and segregated academic settings. This conclusion must, however, be propounded with some degree of caution. The schools used in the current study are located in rural or small urban areas of the state of Tennessee. Many factors somewhat indigenous to this region, such as extremely low teachers' salaries, inadequate physical facilities, and a dearth of appropriate printed materials, militate against the provision of an academic milieu that truly meets the needs of students. There is nothing about school *per se* which should either enhance or impede expressed satisfaction with school.

A more basic objective of the study was to determine the effect of race and type of academic setting on scholastic morale. In the main, the data signify that white students in all educational settings evidenced greater satisfaction with school than Negro students in similar settings. For numerous reasons, school has not been a rewarding experience for many Southern Negroes. Part of the Negro's antipathy toward education can probably be attributed to the debilitating effect of his previous learning experiences. Schools infrequently provide an atmosphere in which the academically crippled can find solace. Also, in the South there has historically been little correlation between academic achievement and vocational success among Negroes. In this sense, education has seemed utterly futile to Negroes.

A really critical issue in the current study is the effect of integration on the scholastic morale of rural, Southern Negro students. The findings pithily imply that integration, given time, can upgrade Negro attitudes, even in adverse sociological circumstances. Of the Negro groups, the segregated Negroes clearly evidenced the least satisfaction with school and the Negroes who had

attended an integrated school for at least one year, the greatest satisfaction. Also, there was much less disparity between the attitudes of Negroes and whites in previously integrated schools than between the racial groups in other academic settings. The study produced little evidence to suggest that the Negroes' academic morale can be improved in the totally segregated setting. Moreover, integration did not magically remediate attitudinal deficiencies which have evolved from several years experience. However, with at least one year's experience in the integrated setting, Negro students definitely exhibited improvement in scholastic morale. The *E*s postulate that while the very fact of segregation conveys debasement of the Negro, integration signifies that the Negro is worthy to be considered on the same level as other human beings. This fact alone is of basic importance. With a reasonable amount of time, integration can have an ameliorative impact on the morale of Negro students (7).

How does the Negro student construe his relationship with his fellow students? Overall, Negroes were more negative in the appraisal of their social acceptance at school than were the whites. This finding corroborates the results of previous studies (3, 9). It is difficult to delineate clearly which type of educational setting is most efficacious in upgrading the social status of Negro students. Responses to Item 6 indicate that Negro students in segregated settings felt more a part of the gang in their school than Negroes in integrated settings. However, Negro students in newly integrated settings were more positive in their appraisal of student fairness and kindness than were the other Negro groups. It may be that the initial impact of integration is to produce somewhat unrealistic expectations of social acceptance, whereas the more long range effect of integration is to destroy many of these initial expectations.

E. Summary

The present study assessed the impact of school desegregation on the expressed academic morale of students in the rural South. A revised form of the Illinois Inventory of Pupil Opinion was administered to high school students in six racial-educational groups: (*a*) Negro students in newly desegregated schools; (*b*) white students in newly desegregated schools; (*c*) Negro students in segregated schools; (*d*) white students in segregated schools; (*e*) Negro students attending schools desegregated for one year or more; (*f*) white students attending schools which had been desegregated for one year or more. The students were administered the Illinois Inventory at the beginning and end of the 1966-1967 academic year. In general, the findings indicate that (*a*) during the course of the year both Negro and white *S*s decreased

in their expressed satisfaction with school, (*b*) Negroes expressed less satisfaction with school than whites, and (*c*) of the Negro groups, the segregated Negro students derived the least satisfaction with school and Negroes in the previously integrated schools, the greatest satisfaction.

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MOTIVATIONAL CORRELATES OF STRATEGY CHOICES IN THE PRISONER'S DILEMMA GAME* [1]

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A. INTRODUCTION

The most striking characteristic finding of prisoner's dilemma game (PDG) experiments is the high degree of competitiveness displayed, demonstrated so far only among American subjects. While it seems reasonable to expect such competitiveness to be related to the personal dispositions of the players, there are surprisingly few positive findings confirming that view and many comparisons of personality and attitude measures with PDG competitiveness have failed to yield significant relationships.

Positive relations with competitive PDG behavior have been reported for six devices. Attempts to replicate two of the findings, entrepreneurial-bureaucratic family orientation (5) and the need variables of Gough's Adjective Check List (10), have not yet been made. The positive results originally reported for three scales, California F (6), Internationalism (9, 12), and Attitudes Toward Human Nature (17), were not found on replication (7, 11, 13, 17). And the relationship of the flexible ethicality scale to competitive PDG behavior is not well established even though the flexible ethicality scale appears to possess high face validity to the dynamics of PDG behavior (1, 2, 3). In addition, a wide variety of personality and attitudinal measures have not been found to be correlated with competitive PDG behavior (2, 3, 17).

These generally negative findings all involve relations between personality-attitudinal-motivational variables and the single dimension of amount of competitiveness in the PDG. It may be that more sensitive measures of behavior in the PDG, as well as better measures of personal dispositions, are needed before it will be possible to demonstrate the effects of the intrinsic characteristics of the participants on PDG behavior. That the use of PDG measures of greater subtlety may be revealing is suggested by several recent studies (8, 11, 13, 16). However, none of these studies has yet been replicated.

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Since two of the not-yet-replicated findings between PDG competitiveness and personal disposition measures seem to involve motivational variables (5, 10) and since the PDG has been called a "mixed-motive" game, it seems desirable to explore more fully the possible relations between motivational variables and more sensitive measures of PDG behavior.

Therefore, the purpose of the present study was to investigate the relationships between the motivational dimensions assessed by the Motivation Analysis Test (4) and PDG behavior as measured both by the number of competitive strategy choices and the two-stage stochastic variables labelled trustworthiness, forgiveness, repentance, and trust by Rapoport (14).

Rapoport's definition of these two trial pattern variables consists of a measure of each *S*'s reaction (cooperative or competitive strategy choice) to the immediately preceding dyadic state on all pairs of trials. Thus, trial 2 is compared to trial 1, trial 3 to trial 2, etc. There are four independent two-trial response pairs possible, each being defined in terms of whether an *S* chooses cooperatively or competitively on the second trial. The pairs are intuitively labelled trustworthy-perfidy, forgiveness-vengeance, repentance-greed, and trust-distrust. Trustworthiness is demonstrated if the *S* cooperates on trial $n + 1$ after both *S*s cooperate on trial n. If A cooperates on trial $n + 1$ after he cooperated and B competed on trial n, A is said to have displayed forgiveness. If A cooperates on the trial after he competed while B cooperated, A demonstrates repentance. When A cooperates on the trial after both *S*s competed, he demonstrates trust. If, after each of the above first trial states, A competes, he demonstrates perfidy, vengeance, greed, and distrust respectively. With two *S*s, then, there are 16 possible two trial states as illustrated in Table 1.

B. Method

A total of 42 dyads, each composed of two male or two female undergraduates, were given 300 trials in a standard PDG apparatus. Each dyad received a different payoff matrix. All *S*s were instructed to obtain as many points as possible and were told that the person with the highest score in the entire experiment would be awarded $25. The results of the different matrices and a detailed description of the apparatus and procedure have been reported by Steele and Tedeschi (15). Following the PDG trials, *S*s were asked to take the MAT either immediately in another room or at home. The results of the 77 *S*s who completed scorable MAT's are reported in the present paper.

C. Results

Correlations were computed between the five PDG measures and the unintegrated, integrated, and total scores of each of the 10 dimensions of the

TABLE 1
THE 16 POSSIBLE COMBINATIONS OF TWO STATES

State	1	2	3	4	5	6	7
	Trial 1		Trial 2		Sub A	Sub B	
1	C	C	C	C	TW	TW	
2	C	C	C	D	TW	P	TW—trustworthiness
3	C	C	D	C	P	TW	P—perfidy
4	C	C	D	D	P	P	
5	C	D	C	C	F	R	F—forgiveness
6	C	D	C	D	F	G	V—vengeance
7	C	D	D	C	V	R	
8	C	D	D	D	V	G	R—repentance
9	D	C	C	C	R	F	G—greed
10	D	C	C	D	R	V	
11	D	C	D	C	G	F	T—trust
12	D	C	D	D	G	V	D—distrust
13	D	D	C	C	T	T	
14	D	D	C	D	T	D	
15	D	D	D	C	D	T	
16	D	D	D	D	D	D	
17	P.TTW* = (2ECCfCC + ECCfCD + ECCfDC)/2ECC						
18	P.TP = 1 — P.TTW						
19	P.TF = (ECDfCC + ECDfCD + EDCfCC + EDCfDC) (ECD + EDC)						
20	P.TV = 1 — P.TF						
21	PTR = (ECDfCC + ECDfDC + EDCfCC + EDCfCD) (ECD + EDC)						
22	PTG = 1 — PTR						
23	PTT = (2EDDfCC + EDDfCD + EDDfDC)/2EDD						
24	PTD = 1 — PTT						

* The symbol "f" is defined as "followed by"; symbol "E" is defined as "sum of"; symbol "T" is defined as "total"; symbol "P" defined as "proportion of."

MAT. The correlations obtained for the narcism-comfort, pugnacity-sadism, self-concept, and sweetheart-spouse factors of the MAT are presented in Table 2.

By chance alone, less than eight of the 150 correlations would be expected to reach or exceed the .05 level of probability and less than two would be expected to reach or exceed the .01 level. Of the 15 correlations within each MAT factor, less than one would be expected to reach or exceed the .05 level chance. Since the number of correlations that reached or exceeded the .05 level was almost double the number which could be expected to do so by chance, since seven of the correlations reached the .01 level, and since more than one correlation reached the .05 level in each of the MAT factors of narcism-comfort, pugnacity-sadism, and self-concept, it seems appropriate to regard the 14 correlations that reached or exceeded the .05 level as significant. The 14 significant correlations are shown in Table 2. Eight of the 14 significant correlations are with unintegrated MAT scores and only one is with an integrated MAT score. Unintegrated narcism-comfort is significantly related to all five PDG measures and total narcism-comfort is significantly negatively correlated

with defection proportion, and positively correlated with repentance and trust; unintegrated, integrated, and total pugnacity-sadism are significantly related to repentance; unintegrated and total self-concept sentiment scores are significantly related to defection proportion; and unintegrated sweetheart-spouse scores are significantly negatively related to forgiveness.

TABLE 2
CORRELATIONS BETWEEN FIVE PDG MEASURES AND FOUR MAT FACTORS

PDG measures	MAT dimension[a]	Motivation Analysis Test factors: Narcism-comfort Erg	Pugnacity-sadism Erg	Self-concept sentiment	Sweetheart-spouse sentiment	N[b]
Defection proportion	U	—.382**	—.011	.267*	.140	
	I	—.049	—.194	.123	.021	77
	T	—.256*	—.094	.299**	.147	
Trustworthiness	U	.289*	.031	.009	—.131	
	I	.060	.072	—.197	.050	65
	T	.222	.006	—.125	—.045	
Forgiveness	U	.285*	.031	—.073	—.266*	
	I	—.026	.133	—.113	.049	70
	T	.168	.083	—.147	—.233*	
Repentance	U	.387**	.251*	—.214	—.011	
	I	.223	.324**	—.044	—.003	70
	T	.381**	.367**	—.144	—.093	
Trust	U	.326**	.006	—.141	—.073	
	I	.024	.194	.008	—.023	75
	T	.230*	.095	—.117	—.091	
Number of r's		15	15	15	15	
Number of r's	.05 level	8	3	2	1	

[a] U = Unintegrated; I = Integrated; T = Total.
[b] N differs because the PDG stochastic variables were not calculated for S unless the necessary preceding dyadic state occurred at least five times.
* $p < .05$.
** $p < .01$.

D. DISCUSSION

The set of significant correlations between the MAT narcism-comfort erg and the PDG measures constitutes the major finding of this investigation. Cattell *et al.* (4, p. 3) describe the narcism-comfort erg as the "level of drive to sensuous, self-indulgent satisfactions" and indicate that the tension connected to this erg "is directed to sensual indulgence of all kinds (food, smoking, etc., included), to ease, self-love, and avoidance of onerous duties (4, p. 22).

Why should the comfort and sensuality motive be negatively related to defection proportion and positively related to the "socially desirable" variables

of trust, trustworthiness, forgiveness, and repentance? A plausible interpretation is that persons higher on the comfort and sensuality motive tended to avoid defecting because failure to cooperate may well cause them to feel "uncomfortable" (i.e., to experience a state of dissonance). Similarly a person with a strong need for comfort and sensuality may also have been trustworthy, forgiving, repentant, and trusting because he may have been "uncomfortable." The fact that narcism is negatively related to school grades, presumably because a self-indulgent person tended to avoid the work and competition with others which were involved in earning high grades (4), is consistent with the interpretation advanced above.

The second strongest set of correlations is that between the pugnacity-sadism erg and repentance. Cattell *et al.* describe the pugnacity-sadism erg and the "strength of destructive, hostile impulses" (4, p. 3) and indicate that it is "the drive to attack, damage, inflict pain, and destroy" (4, p. 22). *S*s in prisoner's dilemma games usually choose to compete and exploit one another. It is possible that a person with strong hostile needs may tend to become more rapidly and fully aroused by the competitive game situation. Finding himself unduly competitive, such a person may then be especially repentant, which could result in a tendency to inhibit his competitiveness.

The significant correlations between the self-concept sentiment and defection proportion are noteworthy. Cattell *et al.* describe the self-concept sentiment as the "level of concern about the self-concept, social repute, and more remote rewards" (4, p. 3). It seems likely that persons with a strong interest in their social reputation tended to become easily involved with outdoing the other player in a prisoner's dilemma game, thereby intending to defect frequently.

The final significant correlation shows that persons who had more sweetheart-spouse interest tended to be less forgiving or more vengeful. Cattell *et al.* describe the sweetheart-spouse sentiment as the "strength of attachment to wife (husband) or sweetheart" (4, p. 3). There appears to be no ready interpretation of why a person with a strong interest in a wife or sweetheart would tend to be vengeful in the prisoner's dilemma game.

E. Summary

The strategy choices of 77 *S*s over 300 trials of a prisoner's dilemma game (PDG) were compared with their motivational dispositions as measured by the Motivation Analysis Test (MAT). The MAT provides measures of integrated ("conscious"), unintegrated ("unconscious"), and total motivation on each of 10 basic motivational dimensions (five ergs and five sentiments).

These 30 MAT scores were correlated with five PDG measures—defection proportion, trustworthiness, forgiveness, repentance, and trust. Fourteen of the 150 correlations were significant. The results show that in this investigation (*a*) persons who scored higher on the narcism-comfort motive (self-indulgence) tended to be more repentant, trusting, forgiving, trustworthy, and to defect less; (*b*) persons who scored higher on the pugnacity-sadism motive tended to be more repentant; (*c*) persons who scored higher on the sweetheart-spouse motive tended to be less forgiving; and (*d*) those who scored higher on the self-sentiment motive tended to defect more as compared with other *S*s.

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COGNITIVE DISSONANCE AND CHANGES IN CIGARETTE SMOKING IN AN ORGANIZED CONTROL PROGRAM* [1]

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A. INTRODUCTION

Cigarette smoking continues to be a common practice among adult Americans of both sexes (5). It is encouraged by mass media advertisements, and it is maintained by various social, psychological, and physiological mechanisms. Since the widespread publicity emphasizing the harmful effects of cigarettes, however, people have been faced with highly convincing evidence that smoking is detrimental to health. In fact, many smokers appear to accept this evidence, and wish to break the habit (8).

Studies have shown that giving up cigarettes is very difficult for most adults, and relatively few succeed for long periods of time (3). The purpose of the present paper is to investigate some of the cognitive elements involved in the decision to stop smoking, and the possible changes in cognitive structure following a successful or unsuccessful attempt. The theoretical model used is Festinger's (2) cognitive dissonance theory.

As it relates to cigarette smoking, the cognitive dissonance model comprises two elements: (*a*) the continuation of cigarette smoking, and (*b*) the belief that smoking causes illness. The dissonance aroused in regular smokers by this conflict may be resolved in several different ways, which are summarized by Pervin and Yatko (6), all of which involve either a change in behavior (in this case, cessation of smoking) or an attitude modification in the direction of a more favorable orientation toward cigarettes. The empirical evidence so far is not conclusive. Some smokers have indeed been shown to be *less* likely than nonsmokers to believe that cigarettes are harmful to health (6). On the other hand, they have often been *more familiar* than nonsmokers with the relevant health information (10) and have not necessarily denied or rejected it (1).

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It may be that individuals differ in their tolerance for dissonant states, or use methods for resolving the conflict which were not assessed in these studies.

Most investigations have compared smokers and nonsmokers. In the present study, however, subjects were *all* regular smokers who had volunteered to take part in withdrawal methods. The level of dissonance was based on actual cognitive measurements, and was not inferred from the smoking behavior of the subjects. Festinger's theory would predict that dissonant smokers ought to be more likely to give up smoking or, failing that, to develop attitudes and/or beliefs more favorable toward cigarettes. The validity of the theory was tested by relating attitudes and beliefs to success in smoking cessation and to subsequent cognitive changes.

B. Method

An eight-page mail questionnaire was sent to all 25- to 44-year-old male members of the Kaiser Foundation Health Plan living in east Contra Costa County, California. Most subjects were white, married, employed men, many of whom had small children. The questionnaire was completed by respondents at the time they did not know they might be invited to take part in a program to help them stop smoking. Included in the questionnaire were two scales measuring attitudes toward smoking and the degree of belief that smoking causes disease. These scales are based on items developed by Horn and Waingrow (4) and administered to nationwide samples.

Respondents who wished to participate in smoking withdrawal methods attended an intake session during which they filled out tests and questionnaires measuring sociopsychological variables (9). Participants for the method were drawn from persons who completed intake and a brief medical screening. Certain instruments, including the attitude and belief scales, were readministered at the end of the eight-week treatment period.

C. Results

As all the treatment subjects were regular smokers, dissonance was defined in terms of pretreatment attitude toward smoking and belief in the harmful effects of cigarettes. It was assumed that the more negative the subject's attitude and the stronger the conviction that smoking causes disease, the greater the cognitive dissonance experienced. Since cessation of smoking is one means of achieving consistency among beliefs, attitudes, and behavior, the more dissonant subjects ought to have been more motivated to stop smoking than those who were less dissonant.

1. *Changes in Smoking*

By the end of the eight-week program, 83 or one-third of the subjects had achieved success, which was defined as at least 85 percent reduction in smoking. Another 104 people (41 percent) did not succeed, but reduced their smoking between 15-84 percent; and 65 (26 percent) remained at about the same level. At a follow-up four months later, 34 of the original Successes had returned to smoking and three other subjects were successful for the first time. Thus, the overall success rate dropped to 21 percent, the Reduced category declined to 29 percent, and the No Change category doubled in size to 50 percent. The results at the one-year follow-up were practically the same as at four months (7).

2. *Cognitive Dissonance and Smoking Withdrawal*

The scale of attitude toward smoking comprised six separate items. Responses to each item were added together to provide a single scale score, with the lower scores reflecting the more negative attitudes. Prior to the study, nearly 80 percent of the subjects had displayed unfavorable attitudes toward smoking. Subjects with moderately unfavorable attitudes had the highest success rate (39 percent, compared to about 30 percent of those with very unfavorable, neutral, or favorable attitudes). Subjects who cut down their smoking but did not quit were overrepresented in the neutral/favorable group, comprising one-half of that category. In contrast, 42 percent of the very unfavorable and one-third of the moderately unfavorable subjects were Reducers. The proportion of No Changers was about the same for all attitude categories, but slightly lower (21 percent) for neutral/favorable scorers. Overall differences were not significant.

Belief in the smoking-disease causation hypothesis did not significantly predict success in the withdrawal program. Those with weak or neutral beliefs had the highest success rate (46 percent), with nonbelievers second (37 percent). These two groups also had the largest proportion of Reducers and the smallest proportion of No Change subjects. The remaining groups—very strong, strong, and moderate believers—had about 30 percent success. Again, most subjects had started out with opinions negative toward smoking.

Scores on the attitude and belief scales were combined to provide a general measure of dissonance. Differences in this combined measure among the three smoking change categories were significant beyond the .05 level. The highest success rate (43 percent) was observed among subjects with unfavorable attitudes but less than moderate belief in the smoking-disease causation hypothesis

($N = 126$). In contrast, fewer of the subjects who had strong beliefs but did *not* have unfavorable attitudes ($N = 22$) were successful (23 percent); these persons were largely Reducers (59 percent, compared to about 45 percent of the subjects dissonant on neither measure—$N = 26$—or on attitudes only—$N = 58$—and 36 percent of those dissonant on both). Persons dissonant on both measures had the highest no-change rate (32 percent), followed by those dissonant on neither or beliefs only (about 20 percent) and attitudes only (12 percent).

3. *Changes in Attitudes and Beliefs*

One means of reducing cognitive dissonance for smokers was to stop smoking. If the dissonant subject failed in his attempt to give up cigarettes, however, an alternative would have been to develop attitudes and beliefs more favorable toward smoking. Thus, dissonant smokers who did not stop smoking ought to have shown such changes to a greater extent than those who did. To test this hypothesis, only subjects who were judged dissonant by virtue of strongly negative attitudes toward smoking were considered.

Changes in attitudes and beliefs between the beginning and end of treatment for Successful, Reduced, and No Change subjects at the end of the eight-week smoking withdrawal method were generally very small, rarely more than one or two points in either direction. Subjects who originally had extremely unfavorable scores were unable to become more negative, and so were not included in the analysis.

4. *Attitude Changes Following Cessation Program*

A total of 47 Successes, 54 Reducers, and 37 No Change subjects were considered dissonant with regard to attitudes toward cigarettes—i.e., had negative scores. (Subjects for whom scores were not obtained at *both* start and end of treatment were eliminated from the analysis.) The overall chi square was not significant. Over half of the Successes became more unfavorable toward smoking, compared to 37 percent of the Reducers and No Change subjects. Conversely, the latter two groups were twice as likely as Successes to become more favorable—slightly over one-fourth as opposed to 13 percent. The three groups did not differ in the probability of no change, since all had proportions of about one-third.

Changes in attitudes were analyzed for subjects dissonant on both measures. Subjects with extreme negative attitude scores were not included in the analysis. Results were similar to those obtained for all subjects with unfavorable attitudes (regardless of beliefs), although differences between the Success

and the other categories were smaller. In general, the Successes and Reducers were more likely to develop more *unfavorable* attitudes (44 percent, compared to 36 percent for No Changes), while No Change subjects were more likely to develop more *favorable* attitudes (one-third, compared to slightly over one-fifth for the other two groups). There were too few subjects dissonant on attitudes only to make comparisons, but differences were in the same direction for this group.

5. *Belief Changes Following Cessation Program*

Subjects were classified as dissonant according to beliefs in the same manner as for the attitude scale. Again, the analysis included only nonextreme scorers and subjects for whom scores were available at both points in time. In all, 51 percent of the Successes became *more* strongly convinced that smoking causes disease, while 38 percent of the Reduced and 42 percent of No Change subjects did so. Conversely, 30 percent of the Successful subjects, 22 percent of the Reduced group, and 24 percent of those who did not change their smoking behavior became *less* convinced that smoking causes disease. Less than one-fifth of the Successes showed no shift in belief, compared to two-fifths of the Reducers and about one-third of the No Change subjects. Overall comparisons were not significant. For subjects dissonant on both measures, the results were practically the same, indicating that attitudes do not influence changes in beliefs. There were too few subjects dissonant on beliefs only to test this relationship further.

D. Discussion

On the whole, the hypotheses generated by cognitive dissonance theory were not strongly supported by the present data. Attitudes and beliefs regarding cigarettes, when combined into a single measure, were related to success in giving up smoking, but not in the way predicted by the theory. Persons who quit smoking were somewhat more likely than Reduced and No Change subjects to develop attitudes and beliefs more unfavorable toward smoking, but these differences were not significant.

There are several possible reasons why the dissonance hypotheses were not strongly supported. First, perhaps the Treatment sample was too homogeneous in attitudes and beliefs. All subjects were at least slightly concerned about their smoking and/or wanted to quit. Thus, differences of a few points on the measures employed may not have reflected genuine variations in dissonance level.

Second, data obtained on other variables indicate that attitudes and beliefs

were not the most important predictors of success. Personal adjustment, ego-strength, chronic anxiety, and amount smoked, for example, were all more strongly related to changes in smoking. Perhaps cognitive measures would be more meaningful if used in combination with other aspects of the individual's personality.

Finally, it may be that the smoking withdrawal process had been artificially interrupted by means of this analysis. To have expected changes in attitudes on the part of unsuccessful subjects implies that these people were no longer trying to give up smoking, and were adjusting their cognitive balance in accordance with that decision. That this assumption is not warranted, however, is shown by the fact that subjects in the study, Controls as well as Treatment subjects, frequently made *repeated* efforts to give up or cut down on their smoking. In fact, over 80 percent of the subjects reduced their smoking at some time during the one-year period following the end of the withdrawal program. Thus, if dissonance was involved as a source of motivation, most people were probably still trying to resolve it by giving up smoking—whether or not they are successful on the first try.

E. Summary

The relationship between cognitive dissonance and success in an organized smoking withdrawal program was investigated among 252 adult-male-volunteer participants. Dissonance was measured in terms of attitudes toward smoking and degree of belief in the smoking-disease causation hypothesis. It was expected that subjects high in dissonance level would have a higher rate of success than the other subjects and, furthermore, that dissonant persons who did not stop smoking would develop beliefs and/or attitudes more favorable toward smoking. The results, briefly, were as follows:

1. A total of 83 or one-third of the subjects were successful in giving up smoking at the end of the eight-week withdrawal program. Two out of five subjects reduced but did not stop smoking completely, while one out of four did not quit or cut down appreciably. By the four-month follow-up, resumption of smoking had lowered the success rate to one-fifth. The dissonance analysis was based on the end-of-treatment results.

2. Attitudes and beliefs, considered separately, did not significantly predict success, but success rates tended to be higher for subjects with moderately unfavorable attitudes and for those with weak or neutral beliefs. Accordingly, on the combined measure (which *was* significantly related to success), subjects who had unfavorable attitudes but did *not* have strong beliefs showed the highest success rate. Subjects dissonant *on beliefs only* contained many Re-

ducers, while those dissonant on *both* measures had the highest No Change rate.

3. Cognitive changes among dissonant subjects were related to Success in the direction predicted by dissonance theory, but not significantly. Thus, successful subjects were generally more likely to develop attitudes and beliefs more *unfavorable* toward smoking, while No Change subjects were more likely to become more *favorable*.

4. The subjects were all volunteers for smoking withdrawal methods and, accordingly, tended to have antismoking attitudes and beliefs from the start. Moreover, other variables (e.g., personality traits) have been shown to be more important than cognitive measures in predicting success. These factors—plus the possibility of ongoing change in both smoking and attitudes—provide possible reasons for the lack of strong positive support for dissonance theory.

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THE COGNITIVE CONSISTENCY OF LEFT AND RIGHT AUTHORITARIANS: A TEST OF ROKEACH'S "BELIEF CONGRUENCY" HYPOTHESIS* [1]

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A. INTRODUCTION

Previous theories of racial discrimination have emphasized ethnic or racial membership as the major determinant of interpersonal rejection and social distance (1). Contrary to this position, however, Rokeach (18) postulated that social distance is a function of attitudinal dissimilarity. According to his hypothesis, interpersonal attraction and choice occur across racial lines when persons share similar beliefs, attitudes, and opinions; on the other hand, rejection occurs when there are differences in opinions, attitudes, and beliefs. For Rokeach (18), belief congruence, insofar as psychological processes are involved, is more important than ethnic or racial membership in determining social discrimination.

While there is considerable agreement among theorists that attitudinal similarity results in attraction and friendship choice within ethnic groups (3, 7, 11, 13, 16, 20, 24, 25), there is little unanimity concerning attraction between ethnic groups. On the one hand, Triandis (25), Triandis and Davis (26), and Triandis, Loh, and Levin (27) suggest that prejudiced persons, in comparison to nonprejudiced ones, evaluate racial factors as more crucial in interpersonal choice situations. On the other hand, Byrne (4), Byrne and McGraw (5), Byrne and Wong (6), Freedman (10), and Stein, Hardyck, and Smith (23) failed to find such clear-cut results. Their data showed that when people are forced to evaluate others on the basis of beliefs or attitudinal similarity, race is not the crucial variable in determining choice. This conclusion is bolstered still further by the studies of Rokeach and Mezei (19), Smith, Williams, and Willis (21), and Stein (22) who found that the ex-

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pression of similar attitudes elicits a positive response, and the expression of dissimilar attitudes a negative response, regardless of race. In fact, only when information about beliefs is absent do racial factors assume importance.

While the Congruency Hypothesis generally explains interpersonal attraction between ethnic groups, previous studies have failed to consider the source effects of race on the perception of message content which is either socially significant or which occurs in face-to-face situations. For example, Vidulich and Kaiman (28) found that high authoritarians agreed with high prestige confederates and low authoritarians with low prestige confederates when exposed to an ambiguous situation. In a related study, Manis (14) showed that both message distortion and veridicality were generally related to the prestige or credibility of the source of the communication.

If, on the one hand, belief congruence is the salient factor determining discriminatory behavior, then it is to be expected that Left and Right Authoritarians, as measured by Rokeach's (17, 18) Opinionation Scale, will agree with liberal and conservative viewpoints respectively, regardless of the ethnic membership of the communicator. On the other hand, if the credibility of the source is a significant factor influencing discriminatory behavior, then it is to be expected that the agreement of Left and Right Authoritarians with liberal and conservative positions respectively will be nonveridical and contingent upon the perceived status of the communication source. Thus, the present study investigated the following hypotheses: (*a*) Left Authoritarians (LAs) will agree with liberal points of view, whether they be expressed by a White or Negro speaker; (*b*) Right Authoritarians (RAs) will agree with conservative points of view, whether they be expressed by a White or Negro speaker.

B. Method

1. *Subjects*

Prior to the selection of the LA and RA samples, two pretesting sessions were conducted. There were a total of 282 male and 380 female, white, volunteer introductory psychology students, attending a large eastern university, who participated in these sessions for course credit.

All *S*s were administered the Opinionation (O) Scale, which contained some items revised by *E*. These revisions included the substitution of current names and events wherever appropriate. Additionally, the Scale was presented in forced-choice format with each item paired with its grammatical reversal, and each *S* was instructed to choose that alternative with which he more closely agreed.

Reliability data for the modified Scale were based upon independent samples of 75 males and females, with a two-week interval between test administrations. For the male sample, the obtained coefficients were .72 and .63 for the Left Opinionation (L.O.) and Right Opinionation (R.O.) subscales, respectively. In the case of the female sample, the respective coefficients were .79 and .86. While Rokeach (18) did not report reliability coefficients by sex, the present ones agree quite well with his data.

For purposes of the present investigation, *S*s classified as either LA or RA score between +1 and +3 sigma above the mean on the respective distributions of the Scale. This selection procedure generated a total of 176 *S*s, who were randomly selected, to form four subsamples of 44 male and female LAs, and 44 male and female RAs.

2. *Overview of the Experiment*

There were four independent variables, each consisting of two levels: (*a*) Authoritarian Orientation (LA *vs.* RA); (*b*) Sex (Males *vs.* Females); (*c*) Debate Condition (Liberal *vs.* Conservative); (*d*) Mode of Presentation (Television *vs.* Audio-Only). The single dependent variable was the extent to which *S*s agreed with either the liberal or conservative position, as rated on a Semantic Differential-Type Scale.

The major hypotheses were tested by means of two debate situations which occurred between a Negro and White male confederate. Eight issues were debated by the speakers, four of which dealt with American foreign policies and four with domestic policies. Those dealing with foreign affairs were the (*a*) admission of Red China into the United Nations; (*b*) test bomb treaty with Russia; (*c*) American relations with Cuba; (*d*) participation of the United States in the United Nations. The domestic issues included (*a*) Medicare; (*b*) loyalty oaths; (*c*) public housing; (*d*) effects of automation. In the first debate condition, the White speaker consistently argued a conservative position against the Negro speaker who assumed a liberal position, while in the second debate situation the positions were reversed. Both the liberal and conservative sides, for each issue, were independently rated by two judges as being fairly representative of either the liberal or conservative socio-political camp.[3]

The experiment was conducted in four classrooms, two of which contained

[3] My sincerest appreciation to Elmer F. Bertsch who painstakingly wrote the issues debated in the experiment. These positions were independently judged by Dr. Stern of the Political Science Department and Lawrence Glasco, a doctoral candidate in History and Government. The authenticity of the positions were further checked with the liberal and conservative papers.

closed-circuit television receptors and, in the remaining two rooms, *S*s were only able to hear the debates over audio speakers. An equal number of male and female LAs and RAs were randomly selected and exposed to any particular treatment; consequently, the statistical design of the study was a 2 × 2 × 2 × 2 analysis of variance which generated 16 treatment combinations with 11 *S*s per cell.[4]

3. *Procedure*

*S*s were notified to report to one of the four experimental rooms. Upon reporting to the appropriate room, each *S* received a Semantic Differential Scale A (SDS-A) and a Semantic Differential-Type Scale B (SDTS-B). Approximately 30 seconds later, *S*s were informed that the experiment would consist of two parts. It was then explained that the first part of the study would attempt to determine if people reacted differentially to voices, irrespective of content.

Previous research (2, 12) suggested the possibility that white *S*s were able to identify the vocal characteristics associated with Negroes. Such an artifact could possibly bias the treatment conditions: LAs might agree with the liberal position because they "know" that it is being championed by a Negro; likewise, RAs might disagree with the conservative position because they recognize that it is argued by a Negro. In any case, the interpretability of the data would be unclear. Markel, Meisels, and Houck (15) devised a technique which suggested that specific impressions of a speaker's physical characteristics and demeanor are determined by voice quality, to which the Potency (P) and Activity (A) factors of the SDS were sensitive, while the attitude of the listener towards the speaker was determined by voice set, to which only the Evaluative (E) factor of the SDS was sensitive. The meaningless content material and bipolar adjectives used by Markel and his associates were incorporated into the present investigation. It was predicted that there would be no significant difference on the E dimension for the voice ratings of the White and Negro speaker given by either the male or female samples, although no specific predictions were made regarding between sex rating differences.

After being instructed to familiarize themselves with the meaningless content material, *E* explained to *S*s that they would hear two different speakers read the same material. Following each speaker, *S*s were requested to rate their "feelings" about the voice on SDS-A.

Immediately following the voice ratings, the second part of the study was

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[4] Many thanks to Oliver Glidewell who helped to clarify the statistical analyses.

explained. *S*s were informed that the purpose of this phase of the experiment would be to determine their opinion on current social problems and issues. *S*s were also told that they would hear eight issues discussed by two speakers. For each issue, one speaker would take Position A; the other, Position B. Upon hearing both positions (A and B), for each issue, *S*s were instructed to rate the extent of their agreement with either position, within 30 seconds, on SDTS-B. After each speaker's presentation, *S*s were informed as to which position had just been given and which position they would hear next. The entire experiment was completed in approximately one hour.

C. Results

A Model 1, $2 \times 2 \times 2 \times 2$ Analysis of Variance was computed on the mean agreement scores for Authoritarian Orientation (LA *vs.* RA), Sex (males *vs.* females), Debate Condition (liberal *vs.* conservative), and Mode of Presentation (television *vs.* audio-only). Significant main effects of Authoritarian Orientation ($F = 78.55$, $df = 1{,}160$, $p < .001$) and Sex ($F = 13.04$, $df = 1{,}160$, $p < .001$) were obtained. A significant first order interaction of Debate $\times$ Mode ($F = 6.48$, $df = 1{,}160$, $p < .05$) and second order interaction of Debate $\times$ Mode $\times$ Sex ($F = 6.60$, $df = 1{,}160$, $p < .05$) were also obtained. In order to test the assumption of homogeneity of variance, F_{max} (29) was computed for the significant main effects. The obtained F_{max} for both Authoritarian Orientation ($F_{max} = 4.15$, $df = 21$, $k = 8$) and Sex ($F_{max} = 8.74$, $df = 10$, $k = 16$) was not significant.

The mean voice ratings of 88 males and females for both speakers on the E, P, and A factors of the SDS were analyzed by t tests. A paired comparisons t test was computed for each sex group and, for both the male and female samples, no significant difference was obtained on the E factor ($t = .69$, $df = 43$; $t = -.34$, $df = 43$). Significant differences were obtained, however, for both the male and female samples on the P and A factors ($t = -2.04$, $df = 43$, $p < .05$; $t = 2.30$, $df = 43$, $p < .05$, respectively for the male sample; $t = -4.67$, $df = 43$, $p < .001$; $t = 3.12$, $df = 43$, $p < .001$, respectively for the female sample).

To assess between sex rating differences, independent t tests were computed. While there were no sexual differences in rating the White speaker on the E, P, or A factors, differences were apparent in the ratings for the Negro speaker. On both the E and P factors, the female sample rated the Negro speaker significantly higher than did the male sample ($t = -2.08$, $df = 86$, $p < .05$; $t = -2.96$, $df = 86$, $p < .01$, respectively).

D. Discussion

The significant main effect resulting from Authoritarian Orientation was consistent with both hypotheses in this investigation: both LAs and RAs agreed with liberal and conservative positions, respectively, regardless of the ethnic membership of the person espousing such views. Thus, the data seemed to support Rokeach's (18) Belief Congruency Hypothesis.

The significant effect resulting from Sex was attributed to the significantly higher score obtained by the female sample, in comparison to the male sample, on the Left Opinionation subscale, a result consistent with data reported elsewhere. There were, in addition, two significant interaction effects which could be interpreted either as "removable" interaction—i.e., that which is due to inappropriate scalar measures of the dependent variable—or "unremovable" interaction—i.e., real error (9). In order to determine which type of interaction was present in this investigation, Epsilon (8) was computed. For both interaction effects, the variance unaccounted for exceeded 70 percent. This low association among the interaction factors suggested "real," rather than methodological treatment error.

However, an inspection of the means for the first and second degree interactions, respectively, suggested the possibility that subject opinions in the televised situation were more polarized than in the audio-only situation; and, paralleling the significant sex effect, female subjects tended to rate all positions, irrespective of the mode of presentation, in a more liberal direction than did male subjects.

Data from the voice ratings on the Evaluative dimension of the Semantic Differential Scale suggested that neither the male nor female sample differed in attitudinal set toward the speakers, although subjects did distinguish between the demeanor or "style" of the two speakers. And, in the case of the female sample, the voice of the Negro speaker was perceived as more positive and more potent than that of the White speaker. While such differential evaluations might have contributed to the obtained interactional effects, the lack of data categorized by Authoritarian Orientation precluded any clear-cut interpretation.

Although the results of the present investigation, based on a simulated face-to-face situation and incorporation of the previously neglected Opinionation Scale, appeared to support the Congruency Hypothesis, the polemic as to the role of race in determining attraction remains unsettled. While Rokeach's (18) position appears tenable, the data reported by Triandis and Davis (26) are equally so. It might be that *both* explanations are correct. If interpersonal

attraction implies closeness sanctioned by social custom, then the Belief Congruency Hypothesis appears valid, but if such attraction implies a relationship which is socially taboo, then the Triandis and Davis (26) position appears valid. This suggests perhaps that the significant factors in interpersonal attraction between the Judge and Other are degree of implied intimacy and the Judge's evaluation of the proscriptives of his reference group governing such intimacy. In any case, future research should concern itself with identifying the precise relationship between these factors and interpersonal attraction.

E. Summary

It was hypothesized that Left and Right Authoritarians, as measured by Rokeach's Opinionation Scale, would agree with liberal and conservative positions respectively, regardless of the ethnic membership of the person espousing such views. Although the data supported Rokeach's hypothesis that interpersonal attraction is a function of attitudinal similarity, it was suggested that the degree of intimacy and the social proscriptions governing it limit the generality of the hypothesis.

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SOME DETERMINANTS OF POSTDECISIONAL INFORMATION PREFERENCES* [1]

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A. BACKGROUND

A great deal of attention has been focused recently on whether or not postdecisional exposure to information is selective. Much of that interest stems from evidence contradicting an assumption at the core of Festinger's original formulation of cognitive dissonance theory that people seek information which supports their beliefs and avoid nonsupportive, or dissonant, information (7). Since it has been shown that this assumption is probably an oversimplification (11, 22, 23), several attempts have been made to identify mediating factors which may influence individuals' information preferences (e.g., 12, 13, 14, 15). This study was designed primarily to explore three such factors—dogmatism, information utility, and confidence.

1. *Dogmatism*

On the basis of Rokeach's conceptualization of dogmatism (17), Kleck and Wheaton have speculated that closed-minded subjects, because of their need to defend against threat and because dissonant information may constitute an implicit threat to the belief-disbelief system, may be highly motivated to avoid dissonant information (13). Though Kleck and Wheaton's findings were in the expected direction, a satisfactory level of significance was not achieved ($.10 < p < .20$), thus suggesting the need for replication. Therefore, it was hypothesized here that closed-minded subjects would show a greater preference for information consistent with their opinions than would open-minded subjects.

2. *Information Utility*

Freedman and Sears have suggested that the results of several studies (1, 5, 10, 16, 18) may imply that "information which is expected to serve a

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practical purpose is preferred to less useful information" (11, p. 82). More recently, however, findings by Brock and Balloun have failed to support that conclusion. Brock and Balloun were unsuccessful in three attempts to affect receptivity by varying information utility (3).

To explore this variable further, the present authors hypothesized differences in the desirability of postdecisional information preferences associated with reversible and irreversible decisions. Since relevant information obtainable after an irreversible decision can serve no practical purpose, it was reasoned that such information would tend to be perceived as only minimally desirable. It was also reasoned that relevant information obtainable after a reversible decision would be perceived as highly desirable, since such information could be of immense practical value to the subject in reformulating his decision. Thus, it was hypothesized that subjects whose original decisions were reversible (high utility) would show greater interest in obtaining further relevant information than would subjects whose decisions were binding (low utility), no matter whether the information was supportive or nonsupportive of their original decision.

3. *Confidence*

The role of self-confidence as a mediating factor in selective exposure is now viewed by dissonance theorists as a major determinant of the preference by some individuals for nonsupportive information. Festinger has proposed that subjects who are highly confident in their decisions may actively expose themselves to nonsupportive information simply to argue against it (8). Low confidence subjects may seek consonant information for its reinforcing property (cf. 4, 6), hoping thereby to bolster their sagging confidence. Though Canon, consistent with the dissonance theory derivation, found that highly confident subjects preferred dissonant information and that low confidence subjects preferred consonant information (5), neither Freedman (10) nor Lowin (15) was able to replicate that finding, reporting instead only negligible differences in selectivity due to variations in confidence. Again, the need for replication was clear. Thus, it was hypothesized here that highly confident subjects would prefer nonsupportive information and that low confidence subjects would prefer information supporting their decisions.

B. Method

The study was carried out in two phases. In the first phase, Form E of the Rokeach Dogmatism Scale was administered by their instructor (R. F. H.) to 106 male and female Boston University undergraduates during a regular

class meeting. In the second phase, carried out during another class meeting several days later, four forms of a three-page booklet were randomly administered by the experimenter (R. L. R.). The booklets were ostensibly part of the Peace Corps research in which the experimenter was purportedly engaged and were designed to give the impression that all subjects were responding to the same material. An introductory paragraph on the cover page stated that a psychologist's evaluation of a young man who had applied to the Peace Corps was contained therein, and that the subject was to indicate if, based solely on the information contained in the evaluation, he would accept or reject the applicant. In approximately half the booklets the evaluation was favorable:

> The applicant's general demeanor was calm and relaxed. He responded quite well to most of the general questions posed. He was not overly talkative.
>
> He indicated that he had traveled abroad during his undergraduate years and that he was familiar with the local customs and mannerisms of people in some of the smaller countries of the world. Though his speaking knowledge of Spanish and French are somewhat limited, he is fluent in Russian.
>
> As the interview progressed and the questions became more personal, the applicant did show some minor signs of nervousness, but these I would attribute to the nature of the questions. The *IQ* of the applicant is in the upper decile. His score on the Ethnocentrism Scale was quite low, indicating that he enjoys being with other people.

The remaining booklets contained an unfavorable evaluation:

> The applicant appeared nervous and agitated. He stammered quite a bit when asked the most general questions. Once he began to talk, he was hard to stop.
>
> The applicant was born and raised in a small town and has never traveled more than 30 miles from his home. He speaks in a distinct accent characteristic of the region he comes from. He neither reads nor speaks a foreign language.
>
> As the interview progressed and the questions became more personal, the applicant began to smoke and perspire. He finished almost a full pack of cigarettes in less than two hours.
>
> The *IQ* of the applicant is in the lower quartile. His score on the Ethnocentrism Scale was quite high, indicating that he does not enjoy being with other people.

After indicating whether they would accept or reject the applicant, subjects estimated on a 101-point scale their subjective confidence in the correctness of the decision. Zero denoted no confidence; 100, complete confidence. They

were then instructed that during a subsequent meeting they would be divided into two groups, one of which would hear an evaluation of the applicant by a psychologist who recommended that the applicant be accepted, while the others heard an evaluation by a psychologist who rejected the applicant. A low utility condition was effected by informing half the subjects that their decisions were irreversible:

> We will not ask you to re-evaluate the applicant, but only to serve as an audience for the psychologists.

The instructions in the high utility condition suggested that the original decision was not binding:

> After you have heard the psychologist, you will be given an opportunity to re-evaluate the applicant.

All of the booklets concluded as follows:

> It would be helpful to us if you would indicate which psychologist you would prefer to hear. Assuming that you had to choose between the two, would you be more interested in hearing the psychologist who accepted the applicant or the psychologist who rejected the applicant? So that we can establish some priorities as to who should be placed in which group, we would also like to have some idea about how interested you are in hearing which psychologist.

Subjects indicated on a six-point scale their interest in hearing either the psychologist who accepted the applicant or the psychologist who rejected him.

C. Results and Discussion

Among both men and women there was, as shown in Table 1, an almost equally strong desire for information dissonant with their initial decision ($F = 1.42$, $df = 1/104$, $p > .10$). Of 106 subjects, 87.7 percent chose further exposure to nonsupportive information. This finding may reflect incredulity that anyone could take an opposite position on the slanted material.

In view of the obvious one-sidedness of the predecisional information, the results would seem to be entirely consistent with earlier hypotheses of Brock (2) and Sears (20), the gist of which is that when a decision is based solely on one-sided information, subjects—at least in this culture—will prefer to hear "the other side of the story." Sears (20, p. 373) summarizes the evidence as follows:

> . . . preferences for counter-information follow when a person has had a one-sided past history of exposure to information on an issue; i.e., when considerably more of the information he has seen favors one side

TABLE 1
POSTDECISIONAL INFORMATION PREFERENCES

Group	N	Information Preferences M	SD
Total sample	106	1.78*	1.49
Men	35	2.03	1.56
Women	71	1.66	1.43
Dogmatism			
Closed-minded	53	1.85	1.61
Open-minded	53	1.72	1.35
Utility			
High (reversible decision)	56	1.93	1.59
Low (irreversible decision)	50	1.62	1.34
Confidence			
High	53	1.38	0.99
Low	53	2.19	1.76
Stimulus direction			
Favorable evaluation	56	2.07	1.72
Unfavorable evaluation	50	1.46	1.08
Decision consistency			
Consistent (LC)	100	1.68	1.36
Inconsistent (LI)	6	3.50	2.22

* Mean scores could range from 1 (intense interest in hearing the dissonant point of view) to 6 (intense interest in hearing the consonant viewpoint), the middle of the scale, or neutral point, falling at 3.50.

than the other. This seems to hold even when the one-sidedness is due to biased information content rather than to differential exposure to spokesmen for each side.

1. *Dogmatism*

The overall mean score for dogmatism was 125.98 ($SD = 20.79$), indicating that the sample was somewhat less closed-minded than the various groups on which Form E of the Dogmatism Scale was originally developed (17, p. 90). Splitting the sample at the median resulted in a mean closed-minded score of 142.62 ($SD = 12.67$) and a mean open-minded score of 109.34 ($SD = 12.26$).

Though the difference in means on the Dogmatism Scale was highly significant, no marked difference in information preferences was revealed between high-scorers and low-scorers. Both closed-minded and open-minded subjects showed an almost equally strong preference for dissonant information ($F < 1$). The results thus fail to provide even modest support for the dogmatism hypothesis. This finding is not inconsistent with some other research in this area that has also failed to support a hypothesis concerning the simple relationship between dogmatism and tolerance for cognitive inconsistency (9, 24), suggesting perhaps that the relationship may be more complex than was originally conceived.

2. *Information Utility*

To test the utility hypothesis, the two halves of the six-point preference scale were collapsed to produce a unidimensional scale ranging from 1, minimal interest in further information, to 3, intense interest. These results provided no support for the hypothesis. Means of 2.68 ($SD = .50$) for subjects whose decisions were not binding and 2.76 ($SD = .47$) for subjects whose decisions were irreversible reveal no appreciable difference in the intensity of preferences for further information ($F < 1$).

With regard to the specific information preferences listed in Table 1, the present investigators, like Brock and Balloun (3), found only a negligible difference in selectivity between high and low utility groups ($p > .25$). To these findings can be added Sears and Freedman's results suggesting that usefulness may not be a *critical* variable in postdecisional information exposure (21) and results reported by Hays and Steiner (12) who, varying decisional stability, failed to find a significant difference between reversible and irreversible decision groups in their postdecisional preferences for consonant information. Even when concession is made for the possibility of a weak manipulation here, this repeated failure to influence receptivity by varying information utility raises a question concerning the criticalness of utility as a determining factor in selective exposure. Perhaps the effects of this variable are more subtle than was originally thought. Thus, Hays and Steiner found that subjects who believed that their decisions could be reversed showed significantly greater preferences for information in general, and for information about the alternatives originally open to them, than did subjects whose decisions were irreversible (12). The same investigators also discovered that selectivity was affected by an interaction between the manipulated variables of utility and decisional consequences: subjects who believed that their decisions were final, and who did not believe that their choice of alternatives would affect the eventual outcome, preferred face-saving consonant information.

3. *Confidence*

The overall mean score for confidence was 74.30 ($SD = 19.16$). Splitting the sample at the median produced a mean high confidence score of 88.40 ($SD = 7.16$) and a mean low confidence score of 60.21 ($SD = 16.89$), the difference in means being highly significant.

The results in Table 1, though not inconsistent with the confidence hypothesis, do not entirely replicate Canon's finding. Both high and low confidence groups showed a preference for nonsupportive information, the desire

for which was significantly stronger among the high confidence subjects ($F = 8.38$). It is possible that this failure to replicate Canon's finding of a preference for supportive information among low confidence subjects was due to the fact that self-confidence was moderately high even among those subjects here who fell below the median. A similar argument could account for Lowin's failure to produce significant effects for confidence (15).[2] On a continuous 100-point scale, Lowin's mean high and low confidence scores would be 66.50 and 51.00 respectively.[3] The difference in means is statistically significant ($p < .02$), but the magnitude of the difference (16 points) is not great. It is also apparent that Lowin's subjects perceived themselves somewhat lower in self-confidence than our subjects, results which may not be inconsistent with Lowin's further finding of a general preference for consonant over dissonant information in both groups. It must be noted, however, that the same argument cannot account for Freedman's finding of an overall tendency toward consonant over dissonant information among both high and low confidence subjects (10), since his means for subjective high and low confidence were both comparatively high (82.40 and 73.10).[4] Again, though, the magnitude of the difference (nine points) is only moderate.

No significant interaction effects were obtained among confidence, dogmatism, and utility ($F < 1$), and the correlation between confidence and dogmatism revealed only a slight, almost negligible relationship ($r = .177$).

4. *Stimulus Direction and Decision Consistency*

The results also revealed a difference in the intensity of postdecisional preferences for nonsupportive information that can be tied indirectly to the direction of the predecisional stimuli. Subjects whose original decisions were formulated on the basis of the unfavorable evaluation showed a significantly stronger desire for further nonsupportive information than subjects whose decisions were based on the favorable evaluation ($F = 4.58$, $df = 1/104$).

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[2] Canon (5), Lowin (15), and Freedman (10) attempted experimentally to manipulate confidence by informing their subjects of the correctness of their decisions, then using self-confidence ratings to provide a check on the manipulation. In Canon's study, the manipulation had a discernible effect on subjects' postdecisional information preferences, but the check on the manipulation failed to reveal a significant difference between high and low confidence groups. Canon suggests that "perhaps because the scales were poorly defined, perhaps because the subjects were impatient to read the articles, they tended to answer these questions quickly and without making good use of the scale" (5, p. 90). Lowin's and Freedman's results, however, were diametrically opposite Canon's, the check on the manipulation producing a significant difference but the manipulation failing to affect the subjects' information preferences.

[3] Personal communication, July 21, 1967. Lowin's subjects rated themselves on a 10-point scale.

[4] Personal communication, August 3, 1967.

One possible explanation for this difference involves what has been termed an "enculturated response" (19): i.e., a normative pattern of behavior acquired through socialization. Enculturated response, in this case, would refer to a learned tendency in the American culture to "say nothing about someone unless you can say something good." One result of this tendency is reflected in aphorisms like, "He can't be all bad" and "There is something good in everyone." In this experiment a negative decision (viz., rejection) based on one-sided, possibly biased, information would be incongruent with the social norm implied in these aphorisms. The situation is complicated by the fact that the only logical conclusion after exposure to the negative evaluation is negative, and thus incongruent with the enculturated response. Figure 1 summarizes the various alternatives and their presumed outcomes and gives the number of respondents selecting each alternative. It can be seen that the decisions of 94.3 percent of the sample were logically consistent with the available information, but that half were thereby "forced" to draw a conclusion presumably incongruent with the social norm of "saying nothing about someone unless you can say something good." One might expect from these subjects an even stronger desire to hear the other side of the story than from subjects whose positive decisions were based on positive information, hence the difference shown in Table 1.

One can also compare the 100 logically consistent (LC) subjects with the six logically inconsistent (LI) stragglers. Festinger has stated that "the amount of dissonance that exists after a decision has been made is a direct function of the number of things the person knows that are inconsistent with that decision" (8, p. 5). In this study the only logical inconsistency facing the LC subjects was their knowledge that a professional person disagreed with their original decision, but this dissonant element might be canceled by their awareness of the fact that another professional person agreed with them. The amount of their dissonance would be low, a result which, when considered in the light of Brock's (2) and Sears' (20) hypotheses noted earlier, could account for their not avoiding nonsupportive information (see Table 1). However, the proportion of relevant elements incompatible with the cognition corresponding to the LI subjects' decisions would be greater. There is, of course, the fact of their awareness that one of two professional people agreed with their decision, but this point can be countered by the nature of the information on which the subjects' decisions were based, their realization of which should logically have led them to an opposite conclusion. These subjects should have experienced fairly high dissonance from having chosen the unattractive alternative of registering a logically inconsistent decision.

Though one might expect in this situation a desire only for supportive material, in fact the subjects were split in their preferences, three choosing supportive information and three choosing nonsupportive. The mean preference score in Table 1 suggests perhaps a desire to avoid all further information, a possibility which may also be reconcilable with dissonance theory. The variance in the LC group, being significantly lower than that in the LI ($F =$

	POSITIVE INFORMATION	NEGATIVE INFORMATION
POSITIVE DECISION (ACCEPT)	LOGICALLY CONSISTENT AND CONGRUENT WITH ENCULTURATED RESPONSE (n=50)	ILLOGICAL AND CONGRUENT WITH ENCULTURATED RESPONSE (n=0)
NEGATIVE DECISION (REJECT)	ILLOGICAL AND INCONGRUENT WITH ENCULTURATED RESPONSE (n=6)	LOGICALLY CONSISTENT AND INCONGRUENT WITH ENCULTURATED RESPONSE (n=50)

FIGURE 1
HYPOTHETICAL OUTCOMES ASSOCIATED WITH POSITIVE OR NEGATIVE DECISIONS FORMULATED ON THE BASIS OF POSITIVE OR NEGATIVE INFORMATION

2.66, $df = 5/99$, $p < .05$), suggests the less willingness of the LC subjects to expose themselves further to anything but "the other side of the story." These significant differences imply the need for further exploration of this variable.

Finally, it can be noted that, as might be expected, the two groups differed in self-confidence ($F = 6.14$, $df = 1/104$), the mean confidence for the LC group being 75.41 ($SD = 18.74$) and that for the LI group being 55.83 ($SD = 16.44$); the groups did not differ in dogmatism ($F < 1$).

D. SUMMARY

Subjects read a favorable or unfavorable one-sided evaluation of a male applicant to the Peace Corps, then accepted or rejected the applicant, rated

their subjective confidence in the correctness of the decision, and indicated their choice between hearing a spokesman who agreed with their decision or one who disagreed with it. The overwhelming preference was for the dissonant viewpoint, the desire for which was significantly stronger among (*a*) subjects whose self-confidence was high *vs.* those whose self-confidence was low and (*b*) subjects whose decisions were formulated on the basis of the unfavorable *vs.* the favorable evaluation. Subjects whose original decisions were logically inconsistent with the evaluation were split in their preferences, while subjects whose decisions were logically consistent tended overwhelmingly to choose the dissonant viewpoint. No appreciable difference in postdecisional preferences was revealed between (*a*) male *vs.* female subjects, (*b*) closed-minded *vs.* open-minded subjects, or (*c*) subjects whose original decisions were binding (and for whom further information was useless) *vs.* those whose decisions were reversible (and for whom further information could have had practical value).

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EFFECTS OF RATES OF TALKING AND CORRECTNESS OF DECISIONS ON LEADER CHOICE IN SMALL GROUPS*

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A. INTRODUCTION

In recent years, a number of studies have been designed to investigate the effects of lights or verbal reinforcers on verbal behavior in Leaderless Group Discussions (1, 2, 6, 7). By and large, these studies have involved the selection of a target person by means of an analysis of the operant or baseline period during which the duration of speech of each group member was recorded, and a second, or conditioning period, in which lights representing "expert opinion" are used to raise the verbal output of the formerly "silent" (low operant) individual by making the lights contingent on his speaking.

Bales (3) and Bass (4) have both reported that a consistent relationship between rate of speech and being chosen as a leader has been noted. This phenomenon was illustrated in a study by Bavelas, Hastorf, Gross, and Kite (5) in which the sociometric structure of a leaderless group was altered by raising the verbal output of a target person, which, in turn, resulted in an increase in his selections as a leader by the other group members.

Aside from the consideration of the rate of talking of the group members, another point which deserves consideration is the quality of speech by the group members: viz., the number of times a group member is "correct" in his solution to a problem or "contributory" in his discussion of a problem.

Previous studies, therefore, suggested that it would be meaningful to investigate the relative effectiveness of both duration of speech and correctness of decisions upon leadership choice. It would also be advantageous to have both of these variables appear independently in a single individual at specific times during the Leaderless Group Problem Solving situation and to employ a series of leader choices rather than a single questionnaire; thus the relationship of one effect to another, as well as the relationship between time talked by each group member and leader choices of each person under these experimental conditions could be examined.

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B. Method

1. *Subjects*

Naive female subjects (three per group) from introductory psychology courses at the University of Tennessee were used. One trained experimental corroborator (the fourth *S*) was also used, responding in a particular prearranged manner during the sessions.

2. *Apparatus*

In a small 8′ × 12′ *S*s' room, separated from the observation room by a one-way mirror, was placed a 4′ × 6′ table around three sides of which the four subjects were seated. Control boxes with one indicator by which the *S*s were to indicate the leader for each problem (by number 1, 2, 3, 4) were connected to a junction box at the center of the table. A microphone was placed at the center of the *S*s' table, connected to a PA amplifier with earphones, through which the *S*s' discussion was monitored by the *E* in the adjoining room. A Concept Board, which contained 36 lights in six rows of six lights each, numbered from 1-36, each with an associated geometric figure cut from colored construction paper on a black field, was in a position on one wall plainly visible to all *S*s. The geometric figures differed according to size, shape, color, and position in space. Above the Concept Board were three numbered (1-2-3) lights used to signal different phases of the experiment.

In *E*'s room was a board with 36 switches used to control the Concept Board lights, as well as a board with a rotating selector switch with associated numbered lights, which allowed *E* to read and record the leader choice of each *S*. On this board were also placed three switches to control the three signal lights in the *S*s' room. There was a panel with four microswitches to hand operate four timer clocks (hung on *E*'s room wall) in order to record the duration of speech of each *S*, while a stopwatch was used to time the various segments of the experiment.

3. *Procedure*

The three naive subjects and the corroborator were introduced and seated around a table in the *S*s' room. The corroborator always took her seat in position number 4 (the last) and the remaining three *S*s were seated randomly. The fact that there was a corroborator in their midst was not revealed to the *S*s before the experiment and, in fact, when questioned after the experiment, it was found that no *S* had realized this. The corroborator was paid at an hourly rate and was instructed that during one half of the discussion periods

(20 trials) she was to respond with great verbal output, sounding as reasonable as possible; however, not one of her responses would be "correct." During the other half of the discussion periods, she was to remain as silent as possible, while her choice of the concept light would be correct on 50 percent, or 10, of the trials. She was informed beforehand of the behavior she was to exhibit in each half of the experiment.

The *S*s were read instructions which informed them that the purpose of the experiment was to select a leader, for each of the 40 problems, who could best lead them in a future discussion of concept formation problems. They were also instructed to respond by giving their solution to the problem: viz., which light they believed would come on next. This was to be done in order, according to the number on each control box, so that the corroborator (number 4) always responded last, thereby avoiding duplication of her answers by the naive *S*s. The group was told that solutions to the problems might be reached by referring to figure similarity, light pattern, etc., as well as when to respond and how to choose a leader. A sample problem was used to illustrate the process, and after answering any questions, the experiment was begun.

In all cases, *E* switched on four lights on the Concept Board at random. Twenty seconds were allowed for an individual decision by each *S*, before signal light number 1 was lit. At this time, the subjects in the order 1, 2, 3, 4 announced their choice and *E* recorded this information on a premarked sheet. This sheet contained spaces for every solution offered by an individual subject on the 40 problems in the experiment. The leader choices for only the naive subjects on each of the 40 trials was also recorded on this sheet. One sheet was used for a half of the experiment; period H where the corroborator received High reinforcement (10/20 "correct" answers), and period L where the corroborator spoke a great deal of the time but received Low reinforcement (0/20 "correct" answers during that period) for her responses. For period H, 10 red circles were placed in a random fashion in the number 4 column, with one each in columns 1, 2, and 3. For period L, four red circles were placed randomly in each column 1, 2, and 3, while none were placed in column 4. Whenever a red circle was encountered, that *S* was reinforced by having her individual response become the correct one.

When *E* completed the recording of the individual solutions, signal light number 2 was switched on. At this time, *S*s were given 60 seconds to discuss the problem and explain why they chose as they had. During the discussion, *E* depressed the appropriate timer switch whenever an *S* spoke, and after 60 seconds, or whenever it appeared that all *S*s were finished speaking (10 sec-

onds silence) signal light 3 was turned on. At this time the *S*s turned the indicator in their control boxes to indicate the selected leader for that particular trial. This process was repeated 40 times, the corroborator being signalled by a red light in her control box after trial 20 indicating that she reverse her behavior. Before concluding, a questionnaire was administered, soliciting information on the perceptiveness of each *S* with regard to who spoke the most and who had the greatest number of correct choices. When this was completed, the purpose and method of the experiment was revealed to the *S*s and they were dismissed.

In all, 20 groups were run—10 in H-L order and 10 in L-H order.

C. Results and Discussion

The votes *S* number 4 received under all conditions are shown in Table 1. A 2 × 2 analysis of variance with repeated measures (8, p. 302) of the leader choices during 20 sessions for subject 4 was performed, dividing these choices into those for the corroborator during period H, during period L, and the choices for *S* 4 in each of these periods, according to the order of treatments (H-L or L-H). The results indicate that in period L, combining both orders, the corroborator was chosen significantly more ($F = 6.91$, $df = 1, 18$, $p < .05$) than in period H. This would seem to indicate that the duration of speech in a low involvement situation, such as the one described, is significantly more influential than the quality of the speech itself in determining the leader of this sort of group. Also of note, though not quite reaching the designated level of significance, is the fact that the corroborator seems to have been chosen more frequently when she was silent but correct for the first half of the experiment and then, in the last half beginning to talk (H-L) than in the opposite instance. This is to say that there is a greater number of total choices for *S* 4 when there is an H-L approach ($F = 3.86$, $df = 1, 18$, $p < .07$).

Since it is known that the effect of talking is, in fact, greater than that of correct decisions, the first correlation to be reported is the total time talked and leader choices for *each S* during the entire experiment. The r obtained from a bivariate frequency distribution was .63. This indication of a positive relation between talking and leader choices confirms much of the previous research reported. However, by calculating separate r's for the High and Low reinforcement periods, we find an interesting result. The obtained r in period L was .74, while the r of leader choice to talking in period H was substantially lower at .34. In the absence of further experimentation, this would lead one to believe that the relationship explained here is due, at least in part,

to the development of a clear hierarchy of speech duration. For example, it should be noted that in period L, the corroborator was to dominate the discussion period, and accumulated a mean total time talked of approximately 9.5 minutes within the total possible time of 20 minutes for discussion. This behavior established, roughly, the beginnings of a hierarchy, having one group member consistently dominant. In period H, however, we have no such clear hierarchy as the reduction in the correlation of speech and leader choices is

TABLE 1
MEANS AND STANDARD DEVIATIONS, FOR TOTAL AND SEGMENTS OF EXPERIMENT, OF VOTES CAST FOR *S* 4 (CORROBORATOR)

Experiment Total(s)	$\overline{X}$	*SD*
H	17.25	10.39
L	24.44	6.32
LH	17.81	8.34
HL	23.88	9.58
Partials		
H-LH	12.50	7.15
L-LH	23.13	5.16
H-HL	22.00	11.40
L-HL	25.75	7.87

also probably due to the effect of correctness of decisions, since the number of choices for *S* 4 in relation to time talked was inordinately high, indicating, at least to some extent, that the correctness of a *S*'s choice influenced the selection behavior of the other group members, although certainly not as much as sheer duration of speech.

In order to determine the effect of the position of a certain period in the order, further correlations were calculated. The correlation of speech and leader choice was determined for H in H-L (.21); L in H-L (.79); H in L-H (.53); and L in L-H (.81). The first and most obvious difference noticed is the difference that persisted in the strength of the relationship between talking times and times chosen as leader in the H *versus* the L periods.

The partitioning of the correlations even further, however, indicates differences between periods within orders. In inspecting the two correlations of period L in orders L-H and H-L, the difference observed is so small that there can be little doubt that the differences present are due to little more than errors of measurement. However, in period H, between the two orders, the difference is not small. The low correlation observed when H occurs first in the order H-L (.21) takes a sizeable jump to .53 when H follows L in the experiment. A possible explanation is that the subjects learned to re-

spond to talking in a hierarchical fashion when L preceded H, causing a high talk-choose relationship; whereas when period H occurred first, the *S*s tended to respond to choosing a leader in either a random fashion, or in relationship to the actual number of correct choices made by an *S*.

The final measure examined the sociometric questionnaire administered to *S*s at the end of the experiment. By scoring the questionnaires for "perceptiveness," the *E*s were able to select those naive *S*s who were able to respond correctly by selecting subject 4 as the *S* who actually spoke the most during the experiment and received the greatest number of correct answers. The comparisons made in the voting behavior of "perceptive and nonperceptive" *S*s indicated that perceptive *S*s voted for the person rated highest on these two points (i.e., person number 4) a significantly greater number of times than the nonperceptive *S*s ($t = 5.5$, $df = 19$, $p < .01$).

In an attempt to determine a pattern of actual voting behavior in the perceptive *versus* the nonperceptive *S*s, the first half of the experimental orders were examined with respect to the voting for the corroborator. It was observed that a large difference between the "perceptive" and "nonperceptive" groups existed in the H period of H-L ($\overline{X}$ 9.25 and $\overline{X}$ 1.8 respectively), while the difference was considerably smaller in the L period of an L-H order ($\overline{X}$ 6.71 and $\overline{X}$ 8.71 respectively).

Initially, observe that in the L period of L-H the means for "perceptives" and "nonperceptive" votes for *S* 4 differs by only 2. A possible interpretation of this is that when the corroborator begins the experiment by speaking a great deal, the persons who have been designated as "perceptive" are "fooled" by the talking behavior (in their votes for the best possible *leader*) only slightly less than the nonperceptive persons.

If we now examine the differences between the "perceptive" and "nonperceptive" group in the H period of H-L, we find a much larger discrepancy than in the previous case. A second interpretation along these lines is that if the corroborator begins silently, but with an abundance of correct answers, the perceptive persons are more likely to notice the correctness of her decisions and utilize this perception as a basis for their voting behavior. It should be noted that only in this instance (H in H-L) was there a significant difference between the perceptive and nonperceptive persons.

This result is in line with the overall comparison of the votes for *S* 4 in the H and L periods, since the votes for *S* 4 are nearly equal for the perceptives and the nonperceptives in period L (at least when it occurs first in the order) and the votes for *S* 4 are far more numerous in regard to the perceptives in the H period than they are for the nonperceptive subjects.

D. Conclusions

From the above data, it could be concluded that duration of speech did, in fact, have a great effect on leadership choice, certainly a greater effect than quality of speech or correctness of decisions in a Leaderless Group Problem Solving situation. This conclusion cannot, however, be generalized to situations other than the low-personal-involvement type of setting in which this task was presented to the *S*s. It is hypothesized that, had the voting for the person with the greater number of correct answers been the basis for monetary or other types of reinforcement, the effect could possibly have been reversed (i.e., the "correct" person would receive a greater number of the votes cast).

Another conclusion from the preceding data is that in a situation where there was no obvious order of talking behavior while performing a task the relationship between talking and leadership choice would be higher if this task follows a situation where such a hierarchy did, in fact, exist. Also, for a person who exhibits contradictory behavior, as did the corroborator in this experiment, the optimal tactic to adopt in order to receive the greatest number of votes is to exhibit high quality of decisions, followed by a high quantity of speech rather than the reverse of this.

Finally, it can be concluded that "perceptive" *S*s will consistently vote for the corroborator a greater total number of times than "nonperceptive" ones and the discrepancy in the voting behavior was due to the fact that the perceptive *S* will also vote for a person who has a great number of correct answers, while "nonperceptive" persons tend to neglect this factor in their voting behavior.

This design, utilizing contradictory behaviors in the same *S* within one subject-group makes it possible to study the effects of these variables upon leadership choices or perhaps even broader attitudinal values. The situation and variables in this experiment may provide a means of examining many different behaviors and their effect on the naive leadership group.

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DIFFERENCES IN LEADERSHIP STEREOTYPES BETWEEN DEVIANTS AND NORMALS*

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A. Introduction

Pictures of the human face have been used as experimental instruments in a variety of studies investigating personality traits and social perception (2, 3, 4). The investment of traits in pictures may be logically considered a projection; and the assessment of any aspect of personality using pictures is a projective technique; and Frye (1) demonstrated that these techniques were also subject to objective rating in a study of the perception of leadership traits from photographs. His results suggested that leadership stereotypes exist and are probably consistent over time.

The purpose of the present study was to determine if leadership stereotypes existed within a group of murderers having extreme personality disorders, and to determine if those stereotypes are similar to the leadership stereotype held by normal subjects.

B. Method

1. *Subjects*

The abnormal *S*s were 24 white males and two white female patients at the Maximum Security Unit at East Louisiana State Hospital. *S*s were abnormal in two respects: (*a*) they had killed one or more people, and (*b*) they were suffering from personality aberrations. They volunteered when asked to participate in an experiment in perception. The normal *S*s were 200 students enrolled in the introductory psychology course.

2. *Procedure*

The *S*s were initially shown 10 pictures of male faces via an opaque projector. They were asked to rank the 10 pictures in terms of leadership ability. The picture of the most able leader was assigned a rank of 1, and the picture of the least able leader was assigned a rank of 10.

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C. Results and Conclusions

The results confirmed the existence of a leadership stereotype. Based on split-half correlation, the agreement indices as to who was the leader were .95 for the murderers; and .93 for the college students. These correlations were significant at the .001 level and indicate a high degree of agreement. The agreement indices between the college students and murderers were .36, which was not significant.

D. Discussion

The murderers, as well as college students, had a stereotype of leadership, but the two groups disagreed in their rankings of perceived leaders; in fact, the rankings by the former were almost diametrically opposed to those by the latter with the exception of the top two rankings. In general, therefore, this study gives strong support to the existence of leadership stereotypes, but also shows that widely different groups held different stereotypes. The differences were probably a function of the experiential backgrounds of each group. Success in leadership may well vary as a function of the perception of traits essential to leadership. Thus, a person may hold successful qualities of leadership at one social-vocational level of management or service, but he is not likely to be a successful leader at a much different social-vocational level unless he can incorporate those aspects of leadership stereotypes held by the different groups.

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CROSS-CULTURAL NOTES

Under this heading appear summaries of studies which, in 500 words or less, provide comparable data from two or more societies through the use of a standard measuring instrument; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting tabular material from ASIS National Auxiliary Publications Service.

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EXTREMITY OF RESPONSE AMONG JAPANESE AND AMERICAN CHILDREN*

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In recent years, considerable research effort has been expended on the problem of response sets or response style. In rating scales or personality tests allowing several options, the tendency to use extreme positions has been found to be readily distinguishable from other response biases. Extreme responding style has been related to level of tension, maladjustment, and pathology. Light, Zax, and Gardiner[1] found that brighter and older subjects made significantly fewer extreme ratings and more intermediate ratings.

For the elaboration of general behavior laws cross-cultural replications are desirable. The present study was designed to replicate the earlier research of Light *et al.*, using Japanese children and adolescents as subjects. In addition, the rating styles of American and Japanese children at several developmental levels were compared.

The subjects for this study were 241 students in the public school system of Tokyo. They were divided into groups of males and females at each of three different grade levels: Grade 12 (34 males and 12 females), Grade 8 (45 males and 49 females), and Grade 4 (40 males and 37 females). These subjects were compared to three groups of American students, studied by Light *et al.*, consisting of 40 children (20 male and 20 female) at three dif-

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[1] Light, C. S., Zax, M., & Gardiner, D. H. Relationship of age, sex, and intelligence level to extreme response style. *J. Personal. & Soc. Psychol.*, 1965, **2**, 907-909.

ferent grade levels comparable to those of the Japanese male and female groups. Except for the 12th graders (in which case Japanese males and females averaged 116 and 118 respectively, while Americans averaged only 101 and 108), mean *IQ*s for the two cultural groups were quite similar (between 100 and 110).

Response style was measured using the 10 Rorschach inkblots as stimuli which were rated on a set of 15 seven-point bipolar scales, the same as those used with the American *S*s. The group testing procedure for Japanese subjects was quite comparable to that for American subjects.

Mean scores for the various groups of Japanese subjects showed an increase in Intermediate (I) responses (ratings of 2, 3, 5, or 6) and a decrease in Extreme (E) responses (ratings of 1 or 7) with age. There was also a steady rise with age in Neutral (N) responses (ratings of 4) among Japanese subjects. No differences in rating style between Japanese males and females were apparent, except with respect to the N scores at the eighth grade, where females scored considerably higher than males. Differences of response style between American and Japanese *S*s were not present in the earliest age level, but Japanese males and females of 12th grade had higher N scores and lower E scores than their American counterparts.

In order to test for the significance of the mean differences observed three $2 \times 2 \times 3$ analyses of variances were carried out involving grade level, sex, and culture. Grade level differences were found to be significant in all of these scores ($F = 25.11$ for E, 12.36 for I, and 5.79 for N) and differences between cultural groups were significant for the E and I scores ($F = 13.30$ and 9.38 respectively) but not the N scores. No significant differences attributable to sex were found in these scores. Significant interactions between grade level and culture were found for both E and N scores ($F = 8.53$ and 11.19 respectively). Also the triple-order interaction of grade level $\times$ sex $\times$ culture was significant for N scores ($F = 4.93$).

In order to determine which of the group differences were significant, a series of t tests were computed. For Japanese *S*s significant sex differences were found only at the eighth grade level involving N scores. No significant differences were found between scores of American and Japanese children at the fourth grade level. However, there were significant differences between these groups of both sexes on E and N scores at the 12th grade level. At 12th grade the score difference between Japanese and American females was also significant. At the eighth grade level, comparisons of the E score differences between Japanese and American males were not significant, but differences on

the I and N scores were significant at the 5 percent level. For the females, significant cultural differences were found only on the E scores.

The results of this study support transculturally the earlier findings of Light *et al.,* who demonstrated that younger children are more likely than older children to give all or none responses. This suggests some generality to the theory that judgments are made on the basis of more cues as the intellectual development of the child increases. These results also confirm earlier findings of no significant sex differences in rating style.

Zax and Takahashi[2] found that Japanese college students produced fewer extreme responses than did American college students, and hypothesized that such trends could be attributed to differences in early child-rearing experiences. In a further investigation,[3] the same authors found that Japanese 12-year-olds made significantly fewer extreme ratings than American children of the same age and also related this to early child-rearing differences in the two cultures. In the present study Japanese 12th graders were found to make fewer extreme ratings than their American counterparts and some similar differences were also seen at the eighth grade level, but such differences were not found among younger children (fourth graders). These findings suggest that the effects of adolescence may be more powerful in shaping the rating style that characterizes the Japanese than early child-rearing practices. This possibility is consistent with recent characterizations of parent-child relations among Japanese. Ushijima[4] suggested that Japanese parents tend to have great tolerance for their younger children, imposing more and more restraint as their children grow older. Frijda and Jahoda[5] similarly have stated, "Japanese personality appears not to be the result of early toilet training, but rather of explicit later indoctrinations." The cultural differences in rating style which have been found may be understood as a reflection of such later indoctrination.

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[2] Zax, M., & Takahashi, S. Cultural influences on response style: Comparisons of Japanese and American college students. *J. Soc. Psychol.,* 1967, **71**, 3-10.

[3] Zax, M., & Takahashi, S. Response styles among Japanese and American children. *Japanese Psychol. Res.,* 1967, **9**, 58-61.

[4] Ushijima, Y. Seio to Nippon no Ningenkeisei (Personality Formation in the Occident and Japan). Tokyo, Japan: Kaneko-Shobo, 1961.

[5] Frijda, N., & Jahoda, G. On the scope and methods of cross-cultural research. *Internat. J. Psychol.,* 1966, **1**, 109-127.

The Journal of Social Psychology, 1969, **79**, 261-263.

A CROSS-CULTURAL COMPARISON OF HOSTILITY IN CHILDREN'S DRAWINGS* [1]

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The present study was designed to measure and compare variations in occurrence of hostility found in drawings of children representing a wide range of cultural backgrounds.

Subjects were 2382 boys, the majority of whom were 11-13 years of age, comprising 26 cultural groups. The method employed was the interpretation of children's drawings recently demonstrated by Dennis[2] and shown to be a useful approach in the design of cross-cultural investigations. Scoring of drawings for hostility was based on criteria established by Dennis and Gardiner.[3] These included the following: presence of weapons (any figure with a gun, knife, sword, etc.), figures of boxers, wrestlers, soldiers, or other persons shown in a posture preparatory for physical struggle—i.e. bared fists or kicking—representations of death or injury, and the delineation of insignias (badges, emblems, medals) commonly associated with cowboys, military figures, etc.

Previous research[4, 5] drew attention to the considerable social and psychological strain produced in Thais as a result of an early emphasis upon the desirability of harmonious interpersonal relationships and prohibitions against extreme emotional expression, particularly hostility and aggression. On the basis of this material, it was hypothesized that the number of drawings depicting hostility would be higher in the Thai than in any of the other groups previously tested—indicating a projection on the part of many children of feelings felt but not normally allowed expression.

* Received in the Editorial Office, Provincetown, Massachusetts, on May 7, 1969, and given special consideration in accordance with our policy for cross-cultural research. Copyright, 1969, by The Journal Press.

[1] This study was conducted while the author was a visiting lecturer at Chulalongkorn University, Bangkok, Thailand.

[2] Dennis, W. Group Values Through Children's Drawings. New York: Wiley, 1966.

[3] Dennis, W., & Gardiner, H. W. Paper presented at *Conference on Psychological Problems in Changing Societies*, East-West Center, Honolulu, Hawaii, 1968.

[4] Gardiner, H. W. An exploratory study of hostility and aggression among Thai children. Mimeographed report to the National Research Council of Thailand, 1968.

[5] Gardiner, H. W. Expression of anger among Thais: Some preliminary findings. *Psychologia*, 1968, **11**, 221-228.

The presentation of results in Table 1 indicates that this hypothesis was confirmed with 35 percent of the Thailand drawings showing some form of hostility followed by such groups as Germany (26 percent), Taiwan (25 percent and 22 percent), Yugoslavia (17 percent), Algeria (15 percent),

TABLE 1
NUMBERS OF DRAWINGS DEPICTING SOME FORM OF HOSTILITY[a]

Cultural group	*N*	Ages	Year	%
Thailand	100	11-13	1968	35
Germany	100	11-13	1963	26
Taiwan I	100	11-13	1964	25
Taiwan II	100	11-13	1964	22
Yugoslavia	100	11-13	1967	17
Algeria	73	13+	1967	15
Sweden	40	11+	1963	13
Turkey	100	11-13	1958	11
Scotland	100	12+	1963	10
Israel I (Nonorthodox Jews)	100	10+	1958	10
Kuwait	100	11+	1967	9
Mexico I (Ladinos)	100	13+	1964	6
Mecca	100	11-13	1966	6
United States I (Brooklyn Negroes)	66	10+	1962	6
United States II (Mississippi Negroes)	100	11+	1962	6
Lebanon	100	11-13	1958	5
Syria	91	11-12	1967	3
Mexico II (Mexico City)	100	11-14	1962	3
Iran	100	11+	1959	3
United States III (Brooklyn Nonorthodox Jews)	96	10+	1956	1
Israel II (Orthodox Jews)	79	10-12	1962	1
Japan	68	11-13	1958	1
United States IV (Brooklyn Orthodox Jews)	79	11-12	1962	0
United States V (Brooklyn White Christian)	90	10-13	1962	0
Cambodia	100	11-13	1958	0
Mexico III (Chiapas Indians)	100	11-13	1964	0

[a] Figures for all groups, with the exception of Thai, used by permission of W. Dennis.

Mecca (6 percent), Syria (3 percent), and Japan (1 percent). Among the most notable variations in hostile content were an emphasis upon both cowboys and men in modern dress with guns and knives in Thai drawings, ancient European and American Indian warriors in those from Germany, and figures of modern soldiers in the drawings of boys from Taipei.

The present study demonstrated differences revealed by children's drawings which, broadly speaking, appear to differentiate a broad range of cultural groups on the variable of hostility.

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The Journal of Social Psychology, 1969, **79**, 265-266.

DOMINANCE-DEFERENCE: A CROSS-CULTURAL STUDY*

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The present investigation aims at exploring the dichotomy concerning Dominance deference patterning in a variety of cultures suggested in a number of recent investigations.[1] In this study an attempt has been made to explore Dominance deference trends in the Indian setting and these findings have also been compared cross-culturally with (*a*) Caucasian American *vs.* Indian, (*b*) Japanese American *vs.* Indian, (*c*) Motherland Japanese *vs.* Indian, and (*d*) Thai *vs.* Indian male and female groups.

The subjects of this study were 293 unselected students (165 males of age group + 20 and 128 females of age group + 19) of postgraduate and undergraduate courses of the Rajasthan University, India. The Dominance deference scale developed by Arkoff *et al.*, which consisted of 10 dominance and 10 deference items, was used as a research instrument. Subjects were instructed to select 10 of these 20 items which were most true to them. The score was simply the number of dominance items encircled by the individual. The range of the scores may be from zero (High deference) to 10 (High dominance). Means and *SD*s were computed for both the sexes: for the male, Mean = 4.6 and $SD = 1.58$; for the females, Mean = 4.5 and $SD = 1.77$. An analysis by means of t test indicated that Indian males and females did not differ significantly along this dimension ($df = 291$, $t = .507$).

These findings were also compared with American and Thai findings for both the sexes. The mean and *SD* values of the groups studied by Arkoff for Caucasian American, Motherland Japanese, and Japanese American males and females are respectively 5.2 ± 1.9 and 3.7 ± 1.60; 4.0 ± 1.33 and 3.6 ± 1.65; 4.0 ± 1.33 and 3.4 ± 1.07. The mean and *SD* values reported by H. W. Gardiner for Thai males and females are 4.5 ± 1.85 and 4.1 ± 1.54 respectively. The t values computed for the groups mentioned above are, respectively (*a*) $df = 195$, $t = 1.91$, (*b*) $df = 190$, $t = 3.01$, (*c*) $df = 220$,

* Received in the Editorial Office, Provincetown, Massachusetts, on May 12, 1969, and given special consideration in accordance with our policy for cross-cultural research. Copyright, 1969, by The Journal Press.

[1] Arkoff, A., Meredith, G., & Iwahara, S. Dominance-deference patterning in Motherland Japanese, Japanese American, and Caucasian American students. *J. Soc. Psychol.*, 1962, **58**, 61-66. Gardiner, H. W. Dominance-deference: A cross-cultural comparison. *J. Soc. Psychol.*, 1968, **75**, 287-288.

$t = .415$, and (*d*) $df = 209$, $t = .370$, for males; and for females the t values are (*a*) $df = 157$, $t = 1.47$, (*b*) $df = 175$, $t = 3.23$; difference between Indians *vs.* Caucasian Americans (Indian group < Caucasian Americans), and Indians *vs.* Japanese Americans (Indian > Japanese Americans), for males, was significant at the level of .05, while for the other two groups the difference was not significant. These findings suggested that Caucasian American males are more dominant in comparison to Indian males. Indian males are more dominant than Japanese Americans. The findings for female groups suggested that Indian females are more dominant than American and Thai female groups. The possible reason for this dominance may be that most of the female students in India belong to families of higher socioeconomic standards.

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A CROSS-CULTURAL STUDY OF ACHIEVEMENT MOTIVATION AND ACHIEVEMENT VALUES IN TWO SOUTH AFRICAN GROUPS* [1]

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According to Max Weber,[2] modern industrial capitalism has a strong link with Protestantism, and especially with Calvinism. McClelland[3] found empirical support for this theory via the concept of *n* Achievement. Rosen[4] proposed the concept of an "achievement syndrome" consisting of two components: viz. achievement motivation and achievement value orientation. The latter was needed also if upward social mobility was to take place.

By comparing Afrikaans-speaking White and English-speaking White *S*s in South Africa it was determined (*a*) whether achievement motivation and achievement values were independent of each other; and (*b*) whether samples from these two groups differed as regards the "achievement syndrome."

n Achievement[5] was measured under neutral conditions, followed by a 12-item questionnaire on achievement values taken from Murray[6] and McClelland.[7] (Example: "I set difficult goals for myself which I attempt to reach.") The *S*s were members of two groups which, although at a similar socioeconomic level, differ (*a*) as regards entrepreneurial pursuit[8] (traditionally carried out by the English-speaking Whites in South Africa), and (*b*) Calvinist faith (endorsed by approximately 99 percent of the Afrikaans-speaking Whites, but only by approximately 11 percent of the English-speaking Whites in South Africa).

* Received in the Editorial Office, Provincetown, Massachusetts, on May 26, 1969, and given special consideration in accordance with our policy for cross-cultural research. Copyright, 1969, by The Journal Press.

[1] This research was conducted while the author was a doctoral candidate at the University of Cape Town, South Africa.

[2] Weber, M. Die protestantische Ethik und der Geist des Kapitalismus. In M. Weber, *Gesammelte Aufsaetze zur Religionssoziologie.* Tuebingen, Germany, 1920.

[3] McClelland, D. C. The Achieving Society. New York: Van Nostrand, 1961.

[4] Rosen, B. C. The achievement syndrome: A psychocultural dimension of social stratification. *Amer. Sociol. Rev.*, 1956, **21**, 203-211.

[5] McClelland, D. C. The Achievement Motive. New York: Appleton-Century-Crofts, 1953.

[6] Murray, H. A., *et al.* Explorations in Personality. New York: Oxford Univ. Press, 1938.

[7] See Footnote 3.

[8] Sadie, J. L. Die Afrikaner in die Landsekonomie. Pretoria, South Africa: South African Broadcasting Corp., 1958.

The Afrikaans-speaking sample consisted of 72 high school pupils and 175 university students, while the English-speaking sample was made up of 95 pupils and 104 students. Differences inside each one of the language groups as regards educational level were not significant.

Results showed that the English-speaking Whites obtained significantly higher *n* Achievement scores (χ^2 test, $p < .001$), whereas the Afrikaans-speaking Whites were significantly higher as regards achievement value scores (χ^2 test, $p < .05$). Furthermore, it was found that in each one of the two groups, *n* Achievement scores did not show significant correlations (r_{bis}) with achievement value scores. This tends to support Rosen's description of the independence of "achievement syndrome" components.

The projectively-tested *n* Achievement level was found to be higher in the group with a traditionally stronger entrepreneurial background. It may be concluded that this link seems to be stronger than the link between *n* Achievement and South African Calvinism. This could be due to the special kind of conservative Calvinism to be found in South Africa, which, in the past, has not been in favor of entrepreneurship. Recent exhortations by leading Afrikaans-speaking Whites (who control the government and the country's civil service) addressed to their own group towards greater achievement (e.g., in business) seem to have resulted in a higher level of *overt* achievement values. However, the level of achievement *motivation* was still significantly below that of their English-speaking White compatriots.

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SOCIAL DISTANCE BETWEEN FIJIANS AND FIJI-INDIANS IN SUVA, FIJI*

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The British Colony of Fiji consists of a group of islands situated in the tropical zone of the Southwest Pacific Ocean. The total population of Fiji is 456,390 (1964),[1] of which 49.9 percent are of Indian descent and 41.4 percent indigenous Fijians. Suva, the largest city in Fiji, has a population of approximately 50,000, the majority of whom are Indians.

A six-item social distance scale was administered verbally to 19 Fijians and 22 Indians in an exploratory study of social distance between these two ethnic groups. The scale consisted of the following items: (*a*) Would you marry a Fijian? (*b*) Would you allow your child to marry a Fijian? (*c*) Would you allow a Fijian to live in your house? (*d*) Would you invite a Fijian to your house as a visitor? (*e*) Would you work with a Fijian? (*f*) Should Fijians be allowed to stay on Viti Levu?[2] For administration to Fijians the word "Indian" was substituted for "Fijian" in all the items. All subjects responded either "yes" or "no." There were no "don't know" responses. The "no" responses were scored 1 and "yes" responses zero. Thus, each individual obtained a social distance score between zero and 6, with a lower score representing less social distance. The subjects were all obtained through casual contacts made in Suva.

It was found that the Indians showed significantly less social distance towards Fijians than Fijians showed towards Indians, the mean score for the Indian subjects being 1.09, and the Fijian subjects, 2.84 ($p < .01$, $t = 3.37$, $df = 39$). This difference was apparent in the item concerning intermarriage with 10 Indians and four Fijians giving replies favorable to intermarriage. The results are in accord with one of the propositions concerning ethnocentrism suggested by Campbell,[3] that the weakest group in a local cluster

* Received in the Editorial Office, Provincetown, Massachusetts, on May 26, 1969, and given special consideration in accordance with our policy for cross-cultural research. Copyright, 1969, by The Journal Press.

[1] Fiji Information. Suva, Fiji: Public Relations Office, 1965.

[2] Suva is situated on Viti Levu, which is the largest island in the Fiji group.

[3] Campbell, D. T. Ethnocentric and other altruistic motives. Paper read at *Nebraska Symposium on Motivation*. Lincoln, Nebraska: Univ. Nebraska Press, 1965. Pp. 283-311.

should be the most ethnocentric (Indians are economically and numerically stronger than Fijians).

Several of the subjects expressed their opinions on aspects of Fijian-Indian relations. A common viewpoint was that attitudes concerning interaction with the other group were becoming more liberal in both groups. The findings of the present study appear to support this contention when compared to the study by Cato[4] published in 1955. However, many people in both groups were found to have unfavorable stereotypes of the other group. Several Indians were critical of the Fijians' "laziness" and "irresponsibility," while some Fijians saw the Indians as being "too mercenary" and lacking in friendliness.

Another issue having some influence on social distance is the difference in religion. While the great majority of Fijians are Methodists, the Indians are predominantly Hindu or Muslim. Several respondents mentioned religious differences as a possible barrier between the groups, particularly with regard to intermarriage.

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[4] Cato, A. C. Fijians and Fiji-Indians: A culture-contact problem in the South Pacific. *Oceania,* 1955, **26**, 14-34.

The Journal of Social Psychology, 1969, **79**, 271-272.

n/ACH AMONG SUCCESSFUL-UNSUCCESSFUL AND TRADITIONAL-PROGRESSIVE AGRICULTURAL ENTREPRENEURS OF DELHI*

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Current researches have massive evidence to demonstrate that entrepreneurship is one of the most dominant variables in economic growth, and that need for achievement is a critical noneconomic variable affecting entrepreneurship. This study was undertaken to see if n/Ach was dominant among agricultural entrepreneurs. It was hypothesized that (*a*) Progressive-successful agricultural entrepreneurs might exhibit dominance in n/Ach over (*b*) traditional and (*c*) unsuccessful ones.

Eighty farmers (40 successful and 40 unsuccessful) from (four traditional and four progressive) border villages of Delhi were drawn randomly. They were deemed to be agricultural entrepreneurs because they owned a considerable amount of land and were engaged in self-farming (with the assistance of family members, or hired laborers, or both), taking the entire risk of gain or loss for the crops they raised. Inability to alter a given (outmoded) situation was regarded as the typical characteristic of traditional entrepreneur. The median per acre yield was taken as the cut-out point to classify successful and unsuccessful agricultural entrepreneurs.

In order to measure n/Ach the set of six pictures for men, which was employed by Veroff *et al.*,[2] was used after suitably Indianizing them at the instance of Atkinson.[3]

The test for measuring n/Ach was administered individually and the obtained responses were scored by following McClelland's method.[4] The

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[1] The author thanks Professor H. C. Ganguli, Head of the Department of Psychology, Delhi University, for providing necessary facilities to work in the Department.

[2] Veroff, J., *et al.* The use of thematic apperception to assess motivation in a nationwide interview study. *Psychol. Monog.*, 1960, **74**, 1-32.

[3] Atkinson, J. W. Personal communication, University of Michigan.

[4] McClelland, D. C., *et al.* A scoring manual for the achievement motive. In *Motives in Fantasy, Action, and Society*, J. W. Atkinson (Ed.). New York: van Nostrand, 1958. Chap. 12.

interscorer reliability was .87. The individual scores for the *S*s ranged from —6 to 23.

The differences in n/Ach scores for the four subgroups—i.e., successful-progressive (A), and successful-traditional (B), unsuccessful-progressive (C), and unsuccessful-traditional (D)—were tested with analysis of variance technique. The *F* ratio (12.48) was found significant at the .01 level.

The differences in n/Ach scores among four groups were further studied by testing the mean gap by Tukey's formula. The value for significant mean gap was 4.35.

The mean n/Ach of progressive-successful agricultural entrepreneurs (Mean = 12.0, *SD* = 5.56) is distinctively higher than that of the remaining three groups (Group B, Mean = 5.95, *SD* = 8.83; Group C, Mean = 4.35, *SD* = 7.88; Group D, Mean = 1.95, *SD* = 5.4). The difference between the mean gap of progressive-traditional-successful (6.05), and progressive-traditional-unsuccessful (6.30) entrepreneurs have been found to be significant. The difference between traditional-successful and progressive-unsuccessful (1.06) agricultural entrepreneurs is not statistically significant. That progressive-successful entrepreneurs possess higher n/Ach than any other group is quite understandable and deserves a follow-up study. The results would be compared against those of business entrepreneurs of Delhi.

In conclusion it can be said that high n/Ach appears to be the special feature of a successful agricultural entrepreneur. By developing n/Ach among Indian farmers, agricultural output may be increased, as well as material input in the field of agriculture.

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ACCULTURATION, TIME PERSPECTIVE, AND FEELING TONE: A CROSS-CULTURAL STUDY IN THE PERCEPTION OF THE DAYS*

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The relation between time perspective and feeling tone among American college students has been studied by Farber.[2] In asking students to rank the days of the week in order of preference, he found that Saturday was rated more favorably than Sunday by all his *S*s irrespective of whether they had classes on Saturday or not. He interpreted this as being due to the "prospect" of the rest day which followed. He found that ranking of days from Monday —the least liked day—to Friday, improved in a neat gradient.

The above findings may be characteristic of western future-oriented urbanized societies rather than of traditional societies which are generally past oriented. If Doob's observation[3] that education shifts behavior from "immediate to delayed gratification" is interpreted as a shift from "present to future orientation," we should expect educated urbanized members in a traditional society to be more future oriented on a Farber-like task than noneducated or unurbanized members from the same society. By the same token, subjects who have been exposed to a future-oriented culture may show more of this orientation on a similar task than their compatriots who have not had such an experience. This expectation was tested on two groups of Saudi Arab college students who differed in their degree of acculturation.

Readers interested in the Saudi culture are referred to Lipsky[4] and to Lebkicher, Rentz, and Steineke.[5] For our purpose it suffices to point out that Saudi Arabia is a developing, basically traditional, Moslem country in which the Sharia or religious law is almost the only legal system.

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[1] The author wishes to thank Miss Amelia Tebcherani for doing the statistical computations.

[2] Farber, M. L. Time perspective and feeling tone: A study in the perception of the days. *J. of Psychol.*, 1953, **35**, 253-257.

[3] Doob, L. Becoming More Civilized. New Haven, Conn.: Yale Univ. Press, 1960.

[4] Lipsky, G. A. Saudi Arabia: Its People, Its Society, Its Culture. New Haven, Conn.: Human Relations Area Files, 1959.

[5] Lebkicher, R., Rentz, G., & Steineke, M. Aramco Handbook. Dhahran, Saudi Arabia: Arabian American Oil Company, 1960.

The subjects were 77 Saudi-born Moslem male college students. Of these 17 had not left Saudi Arabia at all, 19 had lived for one year or more either in Egypt, Lebanon, or the USA, and the rest had visited Arab countries on short holidays. The 17 will be referred to as the "unexposed" and the 19 as the "exposed" group. All *S*s were asked, as a part of a larger study, to rank the days of the week, from 1 to 7, in order of preference, and to indicate their feelings about each day. The results of the "exposed" and the "unexposed" groups will be compared with each other and with Farber's American *S*s.

The results showed that Friday with a mean of 2.5 and Thursday with a mean of 2.8 were the most preferred days for our "unexposed" and "exposed" *S*s respectively. If it is recalled that Friday and Thursday are the equivalent of Sunday and Saturday in the West, we can see a resemblance between our "exposed" *S*s and those of Farber. To determine whether the rank means for the days differed within each group an analysis of variance was made. F was significant at the .01 level in each case. The Neuman-Keuls test[6] for ordered means showed that Friday differed significantly from Monday, Tuesday, Saturday, and Sunday for the "unexposed" group; and Thursday differed significantly from these same days for the "exposed" group. There was no difference between Friday and Thursday for either group. The rank means for each day followed a gradient as in Farber's case.

When *S*s were asked to give their feelings about Friday and Thursday, interesting differences appear. A significantly larger number of our "unexposed" *S*s gave religious reasons for their preference of Friday than did our "exposed" *S*s. Chi square was significant at the .01 level. In regard to Thursday, more of the "exposed" than the "unexposed" *S*s gave preferences that explicitly stated the anticipation of a day of rest. Even though the difference is only significant at the 10 percent level it is in the direction of future orientation for our acculturated group.

The results of a group of 17 "unexposed" and 19 "exposed" Saudi *S*s on ranking the days of the week in order of preference were compared with each other and with American college students.

The rankings of the "unexposed" Saudi *S*s were determined more by religious motives than were those of the "exposed" group. The "exposed" *S*s resembled the Americans in their first choice, the day preceding their official day of rest. This was taken as an indication of their tendency to be more future oriented than their "unexposed" peers. In general the "exposed" *S*s were more explicit than the "nonexposed" *S*s about the future as determining

[6] Winer, B. J. Statistical Principles in Experimental Analysis. New York: McGraw-Hill, 1962.

their choice feeling tone for the day. If we can assume that religion is more rooted in the past, we may be able to predict a greater receptivity to change and development among our "exposed" than "unexposed" *S*s. Exposure seems to increase the future orientation, whereas nonexposure seems to favor the past orientation.

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REPLICATIONS AND REFINEMENTS

Under this heading appear summaries of studies which, in 500 words or less, provide useful data substantiating, not substantiating, or refining what we think we know; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting tabular material from ASIS National Auxiliary Publications Service.

The Journal of Social Psychology, 1969, **79**, 277-278.

RISK TAKING PROPENSITY AND COGNITIVE SET*

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A number of studies have been directed toward the development of a scale to measure an individual's "risk-taking propensity."[1] Kogan and Wallach have developed a frequently used instrument possessing favorable psychometric characteristics.[2]

Several studies have reported that subjects tend to respond in a riskier fashion on the Kogan-Wallach scale when placed in a group context and required to reach consensus regarding their answers to each of the incidents in the instrument than when responding as individuals (the *risky shift* phenomenon). The risky shift has been explained in terms of a *diffusion* of *responsibility* among group members.

The present researchers reason that diffusion of responsibility (an *inter*personal phenomenon) is a manifestation of a more basic *intra*personal phenomenon: namely, the lessening of the *salience of personal responsibility* as perceived by each group member. Thus, we hypothesize that those subjects having the lower relative degree of perceived salience of personal responsibility will exhibit a relatively higher risk-taking propensity than those subjects with the relatively higher degree of perceived salience of personal

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[1] P. Slovic. Convergent validation of risk taking measures. *J. Abn. & Soc. Psychol.*, 1962, **65**(1), 68-71; and Assessment of risk taking behavior, *Psychol. Bull.*, 1964, **61**(3), 220-233.

[2] N. Kogan & M. A. Wallach. Risk Taking: A Study in Cognition and Personality. New York: Holt, Rinehart & Winston, 1964.

responsibility. This is a more parsimonious explanation than assuming a diffusion of responsibility among group members.

One hundred fifty-four single males, 18-25 years of age, served as subjects. Eighty subjects were given an *advisory* set and 74 subjects were given a *central person* set. The sets were provided by modifying the instructions of the Kogan-Wallach scale.[3] Each subject responded to 12 situations on a six-point probability distribution (.1, .3, .5, .7, .9, 1.0), indicating the probability of occurrence which would have to hold before taking (or recommending) a more attractive, but riskier, course of action. The 12 situations involved the following decisions: (*a*) a career decision by an electrical engineer, (*b*) a decision of whether to have major surgery, (*c*) a stock market investment decision, (*d*) a decision concerning what play is advisable in a football game, (*e*) a decision to build a plant in a foreign country, (*f*) a choice between two universities for graduate training, (*g*) a choice of a move in a chess game, (*h*) an occupational decision between music and medicine, (*i*) a decision of whether to attempt escape from a prison camp, (*j*) a choice of whether to run for political office, (*k*) a decision by a scientist of what type of research problem to investigate, and (*l*) a marriage decision.

The results, when aggregated across the 12 incidents, support the hypothesis: i.e., the advisory set tended to generate more risky responses than the central person set ($p < .10$). Eight of the 12 incidents yielded differences in the predicted direction. It should be noted, however, that data were collected on American male college students with the use of paper and pencil (not behavioral) measures of RTP. Generalization beyond these conditions should be done with caution.

Within these constraints, this study shows that cognitive set, as influenced through instructional variation, is an important variable affecting RTP. The direction and significance of the shifts in riskiness in this research, generated by relatively minute alterations in the written instructions preceding the hypothetical situations, would suggest that extreme caution in securing precise control over subjects' perceived roles in future use of the Kogan-Wallach instrument is vital to the generation of meaningful results.

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[3] For copies of the questionnaires and the table reporting results order NAPS Document 00574 from ASIS National Auxiliary Publications Service, c/o CCM Information Sciences, Inc., 22 West 34th Street, New York, New York 10001; remitting $1.00 for microfiche or $3.00 for photocopies.

The Journal of Social Psychology, 1969, **79**, 279-280.

SUPERVISORY FEEDBACK, PERCEPTION OF JOB CHARACTERISTICS, AND JOB SATISFACTION AMONG COMMUNITY HEALTH TRAINEES*

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EILEEN TOBAN

Job satisfaction is crucial to the rehabilitation of the hard-core poor whose problems frequently included a sense of alienation from the world of work.[1] In the present study, *S*s were community health trainees recruited from the poor. They were trained to counsel, make referrals, and other allied tasks. *S*s ($N = 47$) were categorized into feedback levels, High and Low, based on their receiving relatively favorable and unfavorable feedback from their supervisors. It was predicted that feedback level would be a moderator variable in the prediction of the correlation of job satisfaction with perception of the extrinsic and intrinsic merits of the job. Specifically, Lows ($N = 24$) and Highs ($N = 23$) were expected to differ in the direction of the correlation between their job satisfaction and their view of the merits of the job. Highs' job satisfaction was expected to correlate with their perceiving the job as possessing intrinsic merit: i.e., being important, pleasant, and close to an ideal job. In contrast, Lows' job satisfaction was expected to be unrelated to their assessment of the job's intrinsic worth, since they can neither be proud of good work well done, nor bitter about bad work well done. Instead, their satisfaction should stem from their perception of the extrinsic merits of the job, such as salary level and security.

A questionnaire[2] was employed to elicit *S*s' job satisfaction and perception of extrinsic and intrinsic merits of the job. In addition, a difference score was calculated for each *S* based on his perception of the job and his view of an ideal job. The sum of the squared differences comprised a "closeness to ideal" score. Each scale, its number of items, and internal consistency reliability (Cronbach's *alpha*) are, respectively, Importance of work, 7, .69; Pleasantness of work, 7, .70; Job satisfaction, 3, .38; Material Benefits, 5, .42.

* Received in the Editorial Office, Provincetown, Massachusetts, on January 24, 1969. Copyright, 1969, by The Journal Press.

[1] Roach, J. L., & Gursslin, O. R. An evaluation of the concept, "Culture of Poverty." *Soc. Forces*, 1967, **45**, 384-392.

[2] For supplementary material (questionnaire and table of results), order NAPS Document No. 00575 from ASIS National Auxiliary Publications Service, c/o CCM Information Sciences, Inc., 22 West 34th Street, New York, New York 10001; remitting $1.00 for microfiche or $3.00 for photocopies.

Highs and Lows maintained similar mean levels of job satisfaction, but did so by different mechanisms. As predicted, the two groups' job satisfaction was correlated with different aspects of the job. Highs' job satisfaction was correlated to their perception of the importance of the job ($r_H = .60$, $p < .01$);[3] pleasantness ($r_H = .43$, $p < .01$), and closeness to an ideal job ($r_H = .54$, $p < .01$). These intrinsic characteristics were unrelated to Lows' job satisfaction, which instead was significantly correlated with their perception of the material benefits of the job ($r_L = .34$; $p < .05$). Highs' job satisfaction was unrelated to material benefits.

Attitudinal correlates of job satisfactions were found to differ for two trainee groups learning community health techniques. The two groups had received relatively favorable and unfavorable evaluations from their supervisors, and were called "High" and "Low," respectively. Highs' satisfaction was linked to their viewing the job as possessing intrinsic merits; Lows' satisfaction was correlated to their perceiving the job as having extrinsic merit.

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[3] r_H refers to the High group's correlations; r_L, to the Lows'.

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TIME PERSPECTIVE AND DOGMATISM: A REPLICATION*

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Rokeach and Bonier[1] hypothesized that open-minded individuals will characteristically possess relatively broad time perspectives, while closed-minded individuals, who are theoretically believed to be dissatisfied with the present, will tend to have narrow, future-oriented time perspectives. Using 15 highly open- and 15 highly closed-minded undergraduates and a graphic projective measure involving a bisected six-inch line, they found no difference on extension into the future between open- and closed-minded *S*s. Rokeach and Bonier reasoned that "sheer extension into the future and time span do not necessarily indicate an orientation toward the future at the expense of the present. . . . It is only when a person is future-oriented to the point of sacrificing an appreciation of the past that we may say that his future orientation is narrow."[2]

The primary objective of this study was to use a newly developed group-administered projective measure of time span[3] on a qualitatively different group of *S*s who spread out along the open-to-closed-minded continuum in an attempt to replicate Rokeach and Bonier's findings. Also of interest was the way in which extension is related to the four Dogmatism scale items which were generated from Rokeach's theoretical treatment of time perspective.[4]

The *S*s were 55 seniors in a suburban Baltimore high school enrolled in two English classes during the spring of 1968. One week after responding to the Rokeach Dogmatism Scale (Form E), the *S*s received a group-administered projective test of extension into the future. Briefly, *S*s were first asked to "sit back, think, and make up a story." Once finished, they each indicated how much time the action in their story took. *S*s were then provided with the beginning of a second story, which they were asked to complete. Again, they

* Received in the Editorial Office, Provincetown, Massachusetts, on February 10, 1969. Copyright, 1969, by The Journal Press.

1 Rokeach, M., & Bonier, R. Time perspective, dogmatism, and anxiety. In M. Rokeach, *The Open and Closed Mind*. New York: Basic Books, 1960. Pp. 366-375.

2 *Ibid.*, p. 374.

3 Jacoby, J. A note on a group-administered projective test of time span. In preparation.

4 Items 58, 61, 62, and 63 on pages 79-80 of M. Rokeach, *The Open and Closed Mind, op. cit.*

were asked to indicate how much time had elapsed in the action of the story. Responses were scored from 1 to 6, depending upon the length of time indicated and on the basis of a categorization of the frequency distribution of time intervals. The product-moment correlation between the scores for the two stories for the 64 *S*s responding to this instrument was .40, and is highly significant ($p < .01$). Each *S*'s score for the two stories was averaged to obtain a single measure of extension.

On the basis of Dogmatism scores, the sample was partitioned into three groups: low, middle, and high scorers. Although the mean Dogmatism scores differed significantly across the groups, no significant differences in extension scores were obtained. Furthermore, for the entire sample, there was a small but nonsignificant product-moment correlation (—.18) between dogmatism and extension scores. Similarly, the correlation coefficients between the extension score and scores on the four items of the Dogmatism scale theoretically related to time perspective were also nonsignificant (.01, —.04, —.12, and —.22).

Thus the current study, in which qualitatively different *S*s and a different projective measure of extension was employed, has replicated Rokeach and Bonier's findings: *S*s differing in open- and closed-mindedness, as measured by the Dogmatism Scale, do not differ in sheer degree of extension into the future. Furthermore, as reflected by the obtained correlation coefficients, scores obtained on the Dogmatism Scale items derived from a theoretical treatment of time perspective also do not seem to vary as a function of extension into the future.

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The Journal of Social Psychology, 1969, **79**, 283-284.

LATITUDES OF ACCEPTANCE, REJECTION, AND NONCOMMITMENT, AND ATTITUDES TOWARD SELF: A FACTOR ANALYTIC STUDY*

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VIRGINIA E. O'LEARY[1] AND WILLIAM R. HOOD

In an attempt to construct and validate a disguised-structured instrument for the assessment of attitudes toward self, 80 female undergraduates sorted 30 statements from unfavorable to favorable with reference to the reference group label "Chatham Student." Two other measures of attitude were also employed: a six-scale semantic differential and latitudes of acceptance, rejection, and noncommitment. Although the results of the original analysis indicated that the adaptation of the card sort technique to self-attitudes had not been successful, a general response pattern of promising significance in the area of attitude measurement did emerge. As latitudes of acceptance increase, latitudes of noncommitment decrease; and as latitudes of noncommitment increase, latitudes of rejection decrease. In addition to examining the consistency of responses across the various instruments employed, the applicability of the latitude postulations of Sherif *et al.*[2] to attitudes toward self and reference groups was investigated.

Pearson product-moment correlations were computed between the number of categories used and the number of noncommitted categories on the semantic differential and latitudes of acceptance and rejection, in order to determine whether projection had occurred from self-attitudes onto the reference group label "Chatham Student." r values of .698 and .984, respectively, were obtained and led to the failure to reject the hypothesis that projection had occurred. While the correlation coefficient between the semantic differential ratings on the concepts "Chatham Student" and "Self" are consistently positive, the inferred magnitude of differences among judgments indicates that the *S*s' attitudes toward their reference group, as well as toward themselves,

* Received in the Editorial Office, Provincetown, Massachusetts, on February 21, 1969. Copyright, 1969, by The Journal Press.

[1] This research is based on a tutorial directed by William R. Hood and submitted to Chatham College, Pittsburgh, Pennsylvania, in partial fulfillment of requirements for the B.A. degree.

[2] Sherif, C. W., Sherif, M., & Nebergall, R. E. Attitude and Attitude Change. New Haven, Conn.: Yale Univ. Press, 1956.

were tapped. It is suggested that self-attitudes may be a function of a global attitude toward persons, self included, particularly if "others" are members of the *S*'s own reference group.

Analysis of the data by mean latitudes of acceptance, rejection, and noncommitment by *S*'s own positions of acceptance indicates, in opposition to Sherif's findings,[3] that on the average *S*s do not accept the same number of positions regardless of their own stand when the issue is a self-referent one. It seems reasonable to assume that the extent of ego involvement associated with such an issue may account for this difference.

The implications of these findings for studies of attitude change seem clear. If as latitudes of acceptance increase, latitudes of noncommitment decrease and as latitudes of noncommitment increase, latitudes of rejection decrease, it appears reasonable to assume that attitude change may best be affected through manipulation of noncommitment. At any rate the emphasis of many attitude researchers upon position of acceptance to the exclusion of areas of rejection and noncommitment should be re-examined in light of the current findings.

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[3] See footnote 2.

The Journal of Social Psychology, 1969, **79**, 285-286.

THE EFFECT OF INTERPERSONAL LOOKING DURATION ON DOMINANCE JUDGMENTS*

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The literature on eye contact seems to suggest that being looked at may often have the quality of a threat or challenge. One factor that apparently influences reactions to being looked at is the duration of the look. It has been suggested that there are taboos on extended mutual looking, which result from the anxiety generated by extreme involvement[1] and that to become the object of another's look is to experience a kind of vulnerability, to feel that one is no longer the master of the situation, that one is in a sense "controlled" or "dominated" by the other.[2]

Twenty male subjects were each paired with an experimental confederate posing as another subject for a study of impression formation.[3] In the Extended Looking condition (10 subjects) the confederate looked into the subject's eyes for three 58-second periods interrupted by three two-second looking-away periods. In the Brief Looking condition (10 subjects) the confederate looked into the subject's eyes for three two-second periods interrupted by three 58-second looking-away periods. A 2½-foot table separated the pair with the confederate seated with his back to a one-way mirror from behind which an observer noted the amount of time each subject looked at the confederate.

After three minutes of interaction, subjects filled out rating sheets containing a Dominance cluster of six nine-point scales: weak-strong, confident-not confident, dependent-independent, submissive-dominant, comfortable-uncomfortable, inhibited-uninhibited. Subjects completed two different sets of ratings. For one they were asked, "How do you see the other person?" For the other, "How do you think the other person sees you?"

The results showed that recipients of Extended Looks judged the looker

* Received in the Editorial Office, Provincetown, Massachusetts, on April 2, 1969.
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1 Argyle, M., & Kendon, A. The experimental analysis of social performance. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology (Vol. 3)*. New York: Academic Press, 1967. Pp. 55-98. Also, Tomkins, S. S. Affect, Imagery, Consciousness Vol. II: The Negative Affects. New York: Springer, 1963.

2 Sartre, J. P. Being and Nothingness. New York: Philosophical Library, 1956.

3 The author wishes to thank Harry Grabarz for serving as the confederate and Mike Greenblatt for serving as the experimenter.

to be more dominant than recipients of Brief Looks, $\overline{X}_e = 25.9$, $SD = 6.47$ and $\overline{X}_b = 35.3$, $SD = 9.32$ ($t = 2.67$, $p < .01$). Further, recipients of Extended Looks felt that the looker judged them to be less dominant than recipients of Brief Looks, $\overline{X}_e = 33.6$, $SD = 6.04$ and $\overline{X}_b = 24.4$, $SD = 5.56$ ($t = 3.54$, $p < .01$). Additionally, there was no significant difference between subjects' visual behavior in the Extended or Brief conditions in either total looking time—$\overline{X} = 30.6$ and 21.3 seconds, respectively ($t = .44$, $p > .05$), or frequency of looks—$\overline{X} = 10.1$ and 12.8, respectively ($t = .54$, $p > .05$).

Extended looking between male strangers, in the absence of verbal communication, can be understood as a threat in which the person who cannot stand up to the visual challenge presented by the other feels that he has been beaten or dominated.

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ORDER OF DISCLOSURE AND THE ATTRIBUTION OF DISPOSITIONAL CHARACTERISTICS* [1]

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The order in which people reveal their views to one another should be an important determinant of impression formation. If someone who has not yet learned our own opinion espouses a contrary position, we may conclude that he is naive or that he has information we do not possess. But we are unlikely to infer that he is independent, unfriendly, or inflexible. Similarly, if someone agrees with our unvoiced views, we probably avoid inferring that he is therefore a dependent, friendly, or flexible person. On the other hand, the fact that an individual agrees or disagrees with the judgments he has heard us express may readily be construed as evidence concerning his dispositional characteristics.

To test these contentions, each of 80 male college students was paired with an accomplice and asked to supply oral answers to a series of 26 multiple-choice questions dealing with factual matters. The subject and accomplice were asked to consider each question simultaneously and to "take turns" answering first. Because the accomplice had been secretly informed of the answers the subject had given in a previous, private session, it was possible for him either to agree or to disagree with the subject's favored position even when the latter answered last. Four experimental treatments were created by varying the number of times the accomplice supported the subject's judgments: (*a*) six of 13 times when the subject answered first and six times when the subject answered last; (*b*) 13 times when the subject answered first and six times when he answered last; (*c*) six times when the subject answered first and 13 when he answered last; (*d*) 13 times in each response position. At the conclusion of the session the subject rated the accomplice's independence, friendliness, and flexibility.

Whether the accomplice supported the subject's positions 13 or six times when answering *before* the subject had expressed his views did not affect the ratings he received from the subject. But the answers given by the accomplice

* Received in the Editorial Office, Provincetown, Massachusetts, on May 14, 1969.
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[1] This study was conducted as M.A. thesis research by Olberz under the direction of Steiner. It was supported by Grant M 4460 from the National Institutes of Mental Health, United States Public Health Service.

after hearing the subject's replies had significant effects on all three ratings. When the accomplice agreed with all 13 of the judgments he had heard the subject express he was rated as being more dependent, friendly, and flexible than when he agreed with only six of them ($p < .01$ by analysis of variance for each comparison).

These findings suggest that we tend to attribute dispositional qualities to associates who agree or disagree with the views they have heard us express. But we are much less inclined to let our impressions of associates be influenced by agreements or disagreements that become apparent before we have revealed our own opinions.

An earlier study by Steiner *et al.*[2] demonstrated that order of disclosure affects individuals' tendencies to conform and to underrecall disagreements. The present investigation indicates that order of disclosure also influences the attribution process.

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[2] Steiner, I. D., Anderson, J., & Hays, R. Immediate and delayed reactions to interpersonal disagreements: Some effects of the type of issue and order of response. *J. Exper. Soc. Psychol.*, 1967, **3**, 206-219.

CURRENT PROBLEMS AND RESOLUTIONS

Under this heading appear summaries of data which, in 500 words or less, would increase our comprehension of socially compelling problems, hopefully move us somewhat closer to a solution, and clearly show promise of transcending their own origin in the Zeitgeist; additional details concerning the results can be obtained by communicating directly with the investigator or, when indicated, by requesting tabular material from ASIS National Auxiliary Publications Service.

The Journal of Social Psychology, 1969, **79**, 289-291.

MORAL JUDGMENT IN NEGRO AND WHITE ADOLESCENTS* [1]

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EUGENE M. FODOR

The purpose of the present inquiry was to compare Negro and white male adolescents in moral judgment as assessed by the Kohlberg Interview.[2] The Negro group consisted of 25 socially disadvantaged boys, aged 14-17 years, who were enrolled in the ABC Program at Carleton College during the summer of 1968. Within this group were represented urban areas of all regions of the country. Comprising the second group were 25 whites of the same age range selected at random from the Northfield city directory.

Each subject was given the Kohlberg Interview. Nine hypothetical moral situations each confronted him with a choice either of acting in accordance with sanctioned authority or of responding to human welfare needs. He made a choice and then, depending on what choice he made and what kinds of arguments he advanced in support of that choice, he was administered a predetermined set of probes. The purpose of this procedure was to determine the rationale underlying his choice; the choice itself was of no concern. These interviews were taped and then transcribed, and all statements by the subject were rated by means of Kohlberg's detailed coding forms. Raters had no

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* Received in the Editorial Office, Provincetown, Massachusetts, on July 17, 1969.
Copyright, 1969, by The Journal Press.
[1] This research was supported by the National Institute of Mental Health Grant MH 16311-01.
[2] Kohlberg, L. The development of modes of moral thinking and moral choice in the years 10 to 16. Unpublished Doctoral dissertation, University of Chicago, Chicago, Illinois, 1958.

knowledge of whether a given interview protocol was from the Negro or white sample.

Subjects were then administered the Cornell Parent Behavior Description.[3, 4] One of the 50 boys interviewed was unable to complete this questionnaire because he had not resided with his mother throughout the prior year.

Ten transcribed interview protocols were rated by each of two research assistants, and a Pearson correlation of .85 was obtained as an index of interrater reliability.

The two groups of subjects were well matched with one another in terms of *IQ* and age.

The mean Moral Judgment score for Negro subjects was 191 with an *SD* of 31, and the corresponding figure for whites was 195 with an *SD* of 34, a difference which does not approach statistical significance. Both groups were combined for subsequent analysis.

Moral judgment was then examined as a function of mother's education. Subjects were divided at the median number of years of education the mother had completed. This division yielded 34 boys whose mothers had graduated from high school and 16 whose mothers had not. The former group revealed a mean Moral Judgment score of 200, *SD* 31, and the latter a mean of 177, *SD* again 31. This difference was found to be statistically significant ($t = 2.47$, $p < .02$, two-tailed test).

To determine whether there was any relationship between any of the parent behavior dimensions of the Cornell Parent Behavior Description and Moral Judgment score, each of the 14 dimensions contained in the inventory was divided at the median score received on that dimension, and those subjects falling above the median were regarded as "high" on that dimension and those below the median as "low."

Those subjects of the "low" category ($N = 25$) on Instrumental Companionship (which roughly translates into willingness by the mother to assist the child in various learning activities) obtained a mean Moral Judgment score of 202, *SD* 31, as against a mean of 182, *SD* again 31, for the "high" category ($N = 24$). The value of t for this difference was 2.18 ($p < .05$, two-tailed test). These two groups were similar in age and *IQ* distribution.

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[3] Bronfenbrenner, U. Some familial antecedents of responsibility and leadership in adolescents. In L. Petrullo & B. M. Bass (Eds.), *Leadership and Interpersonal Behavior*. New York: Holt, Rinehart and Winston, 1961. Pp. 239-272.

[4] Devereux, E. C., Jr., Bronfenbrenner, U., & Suci, G. A. Patterns of parent behavior in America and West Germany: A cross-national comparison. *Internat. Soc. Sci. J.*, 1962, **16**, 488-506.

None of the differences in Moral Judgment score between "high" and "low" groups on any of the other dimensions approached statistical significance.

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The Journal of Social Psychology, 1969, **79**, 293-294.

RACIAL ATTITUDES OF SOUTHERN HIGH SCHOOL SENIORS: A COMPLEX PICTURE*

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BERNARD CAFFREY AND CLARICE JONES

Williams[1] indicated that increased social contacts lower the prevalence of ethnic prejudice. Caffrey and Capel[2] reported that the shift in attitudes toward Negroes in the last 33 years has been toward a decreasingly prejudiced position. If this shift is related to education, then persons raised in an academic or professional environment or whose parents attended college should be less prejudiced than others. Seniors from two Southern high schools ($N = 84$) were surveyed to test this hypothesis. One of the schools was a typical Southern high school, recently integrated, and located in a "textile mill" city (mill town). The other school was near a small town with a fairly large (6000 students) state university and some of the students were children of university professors (college town). A Likert-type Negro Attitude Test (NAT) was given to all of the students. The NAT consisted of 10 items selected through factor analysis as most valid measures of attitudes toward Negroes.

The results (see tables)[3] did not support the original hypothesis that students from academic or professional backgrounds would be less prejudiced toward Negroes than students from nonprofessional backgrounds. The means of the groups from College Related and Professional families (35.0 and 35.4) were almost identical, and those from Nonprofessional families (37.2) were not significantly higher.

A $2 \times 2 \times 2$ analysis of variance showed that there was a significant difference between boys and girls ($p < .01$), but there was no significant difference based on schools or education of parents. The three independent variables interacted to produce a significant triple-interaction effect ($p < .02$). The girls from the mill town school whose parents had not attended college were the *least* prejudiced (28.4), while their male counterparts scored

* Received in the Editorial Office, Provincetown, Massachusetts, on August 5, 1969.
Copyright, 1969, by The Journal Press.

1 Williams, R. M., Jr. Strangers Next Door. Englewood Cliffs, N.J.: Prentice-Hall, 1964.

2 Caffrey, B., & Capel, W. C. Negro and war attitude of the same persons assessed at three points over a 33-year period. *Psychol. Rep.*, 1969, in press.

3 For tables, order NAPS Document 00576 from ASIS National Auxiliary Publications Service, c/o CCM Information Sciences, Inc., 22 West 34th Street, New York, New York 10001; remitting $1.00 for microfiche or $3.00 for photocopies.

highest on the scale (41.7). The mill town boys and girls whose parents attended college had the same intermediate mean score (34.00). In the college town the daughters of "college" parents were less prejudiced (29.2) than boys from the same type of family (40.5). Daughters of "noncollege" parents in the college town obtained a score (38.1) that was not significantly different from that obtained by all the boys in the study.

In general, the data reflect some of the complex interactions that affect racial attitudes. The total environment—home, school, and community—is involved in their development; there is no simple explanation. Caffrey *et al.*[4] found that the mean NAT scores on male college freshmen were almost identical to those of high school senior boys, and female college freshmen scored the same as the high school senior girls. Male and female college seniors, on the other hand, obtained identically low scores on the NAT. The increased social contacts of college life brought about changes which did not take place while the student was living at home. The complex interaction of family background factors and time-related changes related to personal experiences may account for the many conflicts in studies dealing with attitudes towards Negroes.

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[4] Caffrey, B., Anderson, S., & Garrison, J. Change in racial attitudes of white Southerners after exposure to the atmosphere of a Southern university. *Psychol. Rep.*, 1969, in press.

The Journal of Social Psychology, 1969, **79**, 295-296.

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